

# **TIME-CRITICAL REMOVAL ACTION REPORT**

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**May Creek Landfill  
Renton, Washington  
Task Order: TO-68HE0718F0470**



Prepared for:

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## List of Abbreviations

<b>Abbreviation</b>	<b>Definition</b>
%R	percent recovery
ACM	asbestos-containing material
bgs	below ground surface
BS	blank spike
BTEX	benzene, toluene, ethylbenzene, and xylenes
DNR	(Washington) Department of Natural Resources
DQO	data quality objective
DU	decision unit
Dx	Northwest total petroleum hydrocarbons - extended diesel range
E & E	Ecology and Environment, Inc., member of WSP
Ecology	Washington State Department of Ecology
EPA	United States Environmental Protection Agency
EQM	Environmental Quality Management, Inc.
ERRS	Emergency and Rapid Response Services
FCU/100 mL	fecal coliform units per 100 milliliters
FID	flame ionization detector
Gx	Northwest total petroleum hydrocarbons – gasoline range
H	the sample result is biased high
H&S	Health and Safety
HCID	hydrocarbon identification
ID	identification
IDW	investigation-derived waste
J	the result is an estimated quantity
K	the bias of the sample is not known
KCDA	King County Department of Assessments
KCDDDES	King County Department of Development and Environmental Services
KCDPER	King County Department of Permitting and Environmental Review
KCSWD	King County Solid Waste Division
KCWLRD	King County Water and Land Resources Division
L	the sample result is biased low
MS	matrix spike
MSD	matrix spike duplicate
MTCA	Model Toxics Control Act
NTU	nephelometric turbidity unit
OSC	on-scene coordinator
PAH	polynuclear aromatic hydrocarbon
PCB	polychlorinated biphenyls
PHSKC	Public Health Seattle and King County
PID	photoionization detector
PLM	polarized light microscopy
PPE	personal protective equipment
ppm	parts per million
PSCAA	Puget Sound Clean Air Agency
PVC	polyvinyl chloride
Q	detected concentration is below the method reporting limit, but is above the method quantitation limit
QA	quality assurance

QC	quality control
R	The data is rejected and unusable. The analyte may or may not be present in the sample.
RCRA	Resource Conservation and Recovery Act
RPD	relative percent difference
RSL	Regional Screening Level
RV	recreational vehicle
SCWKC	Superior Court of Washington for King County
SSSP	site-specific sampling plan
START	Superfund Technical Assessment and Response Team
SVOC	semivolatile organic compound
TAL	target analyte list
TCLP	toxicity characteristic leaching procedure
TCRA	Time-Critical Removal Action
TPH	Total Petroleum Hydrocarbons
U	the analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit
USGS	United States Geological Survey
VOC	volatile organic compound
WA	Washington
WSDOT	Washington State Department of Transportation



# 1 Introduction

The United States Environmental Protection Agency (EPA) performed a Time-Critical Removal Action (TCRA) at the May Creek Landfill Site in Renton, Washington. The May Creek Landfill Site has been illegally accepting waste without a permit since at least the 1990s. Numerous site visits and inspections from multiple government agencies have documented the condition of the property over the years, and many injunctions, fines, and warnings have been filed in attempts to control actions on the property.

The primary purpose of the TCRA was to characterize, inventory, and document the disposal of numerous containers that had been stored on the site and that potentially contained hazardous substances. An additional TCRA objective was to evaluate potential impacts to the environmental condition of the site as a result of on-site waste acceptance, management, and disposal practices. Field activities for the TCRA were performed from November 16 to December 14, 2018, and again from July 8 to August 8, 2019.

EPA performed the TCRA under authority of the Comprehensive Environmental Response, Compensation, and Liability Act and its amendments. EPA tasked Ecology and Environment, Inc., member of WSP (hereafter referred to as E & E), under Superfund Technical Assessment and Response Team (START)-IV contract number EP-S7-13-07, Task Order 68HE0718F0470, to provide technical assistance, sampling support, and documentation for the TCRA. Waste management, disposal, and other construction-related removal activities were performed by Environmental Quality Management, Inc. (EQM) as the Region 10 Emergency and Rapid Response Services (ERRS) contractor.

This report is divided into the sections outlined below. Representative photographs of TCRA field activities are included in Appendix A.

- Section 1: Introduction;
- Section 2: Site Description and Background;
- Section 3: Time-Critical Removal Action Scope, Organization, and Schedule;
- Section 4: Removal Sampling Activities;
- Section 5: Fall 2018 Removal Activities;
- Section 6: Summer 2019 Removal Activities;
- Section 7: Summary of Waste Disposal;
- Section 8: Community Relations;
- Section 9: Quality Assurance (QA)/Quality Control (QC);
- Section 10: Summary and Conclusions;
- Section 11: References; and
- Appendices.

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## 2 Site Description and Background

### 2.1 Site Location

<b>Site Name</b>	May Creek Landfill
<b>SSID #</b>	10RB
<b>CERCLIS #</b>	N/A
<b>Location</b>	15753 Renton-Issaquah Road, Renton, WA 98059
<b>Parcel Number</b>	063810-0031

The May Creek Landfill includes a single, 9.97-acre parcel located approximately 6 miles east of Interstate 405 in a rural residential area of unincorporated King County (Figure 2-1). It has been owned since at least 1977 by the current property owner. The property is located near Renton, Washington, on the south side of Renton-Issaquah Road, otherwise known as State Highway 900. Land use in the immediate vicinity of the site includes residential and agricultural properties east, west, and south of the site, with May Valley Park directly adjacent to the northeast corner of the property.

### 2.2 Site Layout

The site is located on a hillside that slopes down to the east/northeast, varying from an elevation of slightly over 500 feet on the southwest corner of the site to less than 380 feet at the northeast corner of the site. Improvements on the site include a single-family residence and several shed/garage-type outbuildings. The major functional areas of the property include the Landfill Area, Workshop Area, Bus/Recreational Vehicle (RV) Area, and Residential Area (Figure 2-2). The property is served by King County Water District 90 but not by a municipal sewer system.

Although stands of trees remain along the property margins, and a larger cluster of trees is present on the north/northeast corner of the site, the site itself is predominantly cleared of vegetation, with only isolated trees and low-lying vegetation remaining. Where trees and low-lying vegetation remain, the understory is sometimes thick with brambles and nearly impassable.

Principal site access is via the unpaved driveway entering the property from Renton-Issaquah Road. Once on the site, this driveway has several forks that connect to an unimproved driveway that circumnavigates the site and traverses the Landfill Area. The main stem of the driveway leads to the residence and other structures.

The property also has several surface water features including a pond, various drainage channels, and an interconnecting network of drainage pipe (Figure 2-2). The largest of these water features is a pond located at the southwest and most-upgradient corner of the site. This pond receives water from a plastic, corrugated pipe located near the border of the adjacent property. From the pond, water drains generally diagonally to the northeast across the site, through a series of ditches and buried pipes. This drainage path routes past the west side of the residence, where the generally flat topography results in a slow-moving, ponded segment of the drainage channel. As the drainage proceeds past the residence and the topography becomes steeper, the speed of surface water flow increases and little to no areas with standing water are present. This surface

water flow ultimately leaves the property where the access driveway intersects Renton-Issaquah Road. An additional drainage channel runs along the northern access drive on the property to the landfill, intersecting with the main drainage channel. Additional surface water drainage features were observed along the western and southern property margins; neither of these channels connect to the main drainage path described above, with surface water apparently infiltrating into the ground surface before running off site.

In connection with its past use as a landfill, cleared areas throughout the site received various forms of wastes. While certain types of waste are clustered in specific site areas, most types of wastes were observed throughout the site. As described in the following subsection, waste areas have been broadly grouped into the main Landfill Area where general waste was prominent, and the Bus/RV and Workshop Areas where vehicle storage, disassembly, and maintenance were prominent. However, it should be noted that none of these areas had a strict waste management practice, and most waste streams could be found in many areas across the property. For example, while the Landfill Area is the largest site area containing landfill debris, trash and debris were also generally observed on the ground throughout other areas of the site. Additionally, while the main feature of the Bus/RV Area is a large number of clustered and apparently inoperable vehicles, there were also numerous apparently inoperable vehicles located throughout other site areas including the Landfill and Workshop Areas.

### **2.2.1 Removal Site Layout**

EPA performed removal activities on two separate properties. These included both the May Creek Landfill property itself, which was the subject of the TCRA, as well as the adjacent property to the west, which is owned by a different individual. This adjacent property was used as the Command Post for logistical and operational support (Figure 2-2). EPA was granted access to the property used as the Command Post in a separate agreement with the owner of that property. While it was possible to directly access the Landfill Area by the residential driveway from Renton-Issaquah Road, site staff typically drove on Powerline Drive to the Command Post property and then accessed the landfill site from the Command Post. To facilitate access and operational support, ERRS graded, filled, and leveled both Powerline Drive and the Command Post area with imported clean gravel. As direct vehicular access to the Landfill Area was not available from Powerline Drive, at the beginning of the TCRA, the access way between the Command Post property and the northwest corner of the landfill was also improved during the TCRA.

Equipment staged on the Command Post property included several rented modular office trailers and EPA-owned trailers. The modular office trailers were used by EPA, START, and ERRS personnel responsible for overseeing removal operations and general project management tasks. The EPA-owned trailers were used to facilitate mobilization and demobilization of equipment and supplies at the beginning and end of the field event. During operations, field staff used the EPA-owned trailers to store smaller equipment and supplies, and to conduct sample processing and waste characterization efforts. An additional area was also set up adjacent to the EPA-owned trailers for waste staging and characterization; this area included covering the ground with polyethylene sheeting and installing a portable awning to protect the area from rain and minimize the risk of spills.

To facilitate removal activities, EPA divided the site into four Decision Units (DUs) (Figure 2-2). These DUs generally corresponded with the predominant use and/or features therein, and are broadly included the Landfill Area, Workshop Area, Residential Area, and Bus/RV Area. Across the May Creek Landfill site, the property owner did not appear to segregate waste streams by source or type, and most any type of waste could be found in many, if not all, of the DUs.

Because of their large size, three of the DUs were divided into subareas, with the Workshop DU divided into two sections (W1 and W2), the Landfill DU divided into six sections (L1 through L6), and the Bus/RV DU divided into five subsections (B1 through B5). As sampling and container collection did not occur within the Residential DU (R1), this DU was not divided into additional subsections. These subareas are shown on Figure 2-2.

## **2.3 Surrounding Land Uses**

Land use in the area is a mixture of residential, agricultural, commercial, and public use parks, with residences present on immediately adjacent properties in all directions. Several of these adjacent residences also included fence-enclosed pastures to raise and board horses. May Valley Park, adjacent to the northwest corner of the site, is a public use, multi-acre woodland park. The nearest retail/commercial land use is located approximately one-third of a mile to the southeast, at the intersection of SE Renton-Issaquah Road and 164<sup>th</sup> Avenue SE. The nearest location of a sensitive population is at Apollo Elementary School at 15025 SE 117th Street, approximately 1,800 feet southwest of the site.

## **2.4 Site Physical Characteristics**

START reviewed existing geologic and hydrogeologic information pertinent to the region surrounding the May Creek Landfill to provide background knowledge for the implementation of this TCRA. That information was obtained from the following source:

- *Geologic Map of Surficial Deposits in the Seattle 30'x60' Quadrangle, Washington* (USGS 1993).

In addition, START performed a cursory review of well drillers' logs within the general area of the project from the Washington State Department of Ecology (Ecology) (Ecology 2019) and Washington State Department of Natural Resources (DNR 2019). A summary of this geologic and hydrogeologic information is provided in the following subsections.

### **2.4.1 Geology**

The May Creek Landfill site is located within the Puget Lowland, an elongated basin that sits between the Olympic Mountains to the west and the Cascade Range to the east. Surficial geology in this area is strongly influenced by the recurrent advance and retreat of glaciers over the last 2 million years. The most recent occurrence was when the Vashon stade of the Fraser Glaciation reached and then retreated from the Puget Sound area 17,600 and 16,600 years ago, respectively. At the peak of this most recent glaciation, the Seattle area was buried by over 900 meters of ice. These glacial cycles have impacted both the surficial topography and the type, composition, and extent of the underlying material deposited. For the Puget Sound area, surficial geology related to the Vashon stade includes sand, silts, and gravels present in a variety of sizes, shapes, densities, and relative percentages (USGS 1993).

More specific to the May Creek Landfill site, the property is on the northeast flank of a local southeast trending drumlin, or hillside. At the surface, native soil deposits are characterized as Vashon till, a non-sorted, non-stratified mixture of clay, silt, sand, and gravel. This material is typically very dense and has a low permeability that can result in minimal infiltration of surface water into the subsurface, and formation of poorly drained bogs in areas with flat topography. While materials beneath the till in the May Creek Landfill site are not specified, the Vashon till typically overlies glacial advance outwash deposits. Till deposits can typically be 1 to 2 meters thick, although till deposits up to 25 meters thick have been encountered in the Puget Lowland (USGS 1993). That said, landfilling has obscured the native till across much of the site, with up to 25 feet of fill material found at the site.

#### **2.4.2 Surface Water**

The site lies within the watershed of Tributary 0291A, which drains into May Creek (KCWLDRD 2014). Green Creek, which also drains into May Creek, runs as close as 500 feet east of the May Creek Landfill property line. Both tributaries are designated as fish bearing streams, and Green Creek has been designated as potential habitat for coho salmon (*Oncorhynchus kisutch*), steelhead (*Oncorhynchus mykiss*), searun cutthroat (*Oncorhynchus clarkii*), and resident trout (WSDOT 2018) (KCWLDRD 2014).

May Creek itself is 8.6 miles in length (Williams, et al. 1975). The creek drains a 14-square mile basin from Lake Kathleen and numerous unnamed tributaries on the eastern Renton Plateau to Lake Washington in the west (King County 2001). The creek was straightened before 1936 and its associated wetlands were ditched and drained, apparently for agricultural purposes (King County 2001). The classification of May Creek was clarified in a 2001 hearing examiner proceeding (King County 2002). This ruling held that May Creek constitutes a “stream” rather than a ditch in the vicinity based on current salmonid use and on the stream’s existence prior to ditching. May Creek is mapped as Class 2 (a stream smaller than Class 1 and flows year-round during years of normal rainfall) with salmonids through the site, which requires a 100-foot buffer under King County Sensitive Areas regulations (King County Code 21A.24) (King County 1990).

### **2.5 Site History and Operations**

The approximately 10-acre May Creek Landfill site has operated as an illegal solid waste landfill since at least the early 1990s, and the property owner is continuing to receive waste materials on his property as of the date of this report. The property has a long history of investigations and citations by county, state, and federal regulatory agencies. However, the property owner has claimed to be operating a composting, material recovery, waste reduction, and recycling business at the site. During inspection of the site and review of available documentation, Public Health Seattle and King County (PHSKC) inspectors noted that the actual wastes observed during the inspection, and the wastes collected and processed as described by the property owner, did not meet any definition or criteria for compost or waste recycling. Additionally, there was no indication that any such material was leaving the property other than a small amount of scrap metals. EPA has also received reports that metal scrapping activities were common on the property. The site has been accepting waste since at least the 1990s but has no permit to do so

(PHSKC 2014b). Documented activities on the site include, but are not limited to (Ecology 2016a):

- Auto wrecking;
- Incinerating waste;
- Scrapping metals;
- Smelting metals;
- Producing biodiesel; and
- Receiving construction, demolition, and land-clearing debris.

As early as 1993 the King County Department of Development and Environmental Services (KCDDDES) (now known as the Department of Permitting and Environmental Review) issued waste disposal violations to the property owner. One of these violations, dated August 20, 2000, stated that the property owner was in violation of accumulation of inoperable/junk vehicle parts, yard waste, and debris; as well as the operation of an asphalt business in excess of home occupation regulations (KCDPER 2019).

From 2000 to 2006, the Puget Sound Clean Air Agency (PSCAA) received five complaints about asbestos release and outdoor burning. On September 5, 2008, King County Superior Court issued a default judgment of \$11,117.88 against the property owner on behalf of PSCAA (SCWKC 2008).

By February 2001, the PHSKC issued a notice of health code violation (File No. CO0000231) for the extensive and unpermitted dumping, accumulation, and storage of solid waste, including but not limited to junk vehicles, junk metal, roofing materials, and yard waste. Additionally, the PHSKC found that these actions constituted the operation of a solid waste facility without a permit, failure to satisfy waste management requirements, and the failure to prevent unlawful solid waste dumping and disposal at an approved facility (PHSKC 2001).

In 2002, the Washington State Patrol served a search warrant, finding nearly 100 junked cars on the property. The same year KCDDDES issued another notice (KCDDDES 2002) to the property owner including the following citations:

- Clearing and grading without permits;
- Accumulation of inoperable vehicles, vehicle parts, scrap, garbage, junk, and debris;
- Storage of commercial equipment, storage containers, and more than eight vehicles not owned by the resident; and
- Operation of an auto wrecking yard, landfill, and yard waste recycling businesses in violation of county code.

In late 2002, the King County Water and Land Resources Division (KCWLRD) collected three surface water samples on the May Creek Landfill property from upgradient of the debris piles, downgradient of the debris piles, and within May Creek, downgradient of the property. Chromium, copper, lead, zinc and oils were detected in the surface water below the debris piles. Additionally, it was reported that extremely high levels of fecal coliform contamination were found in storm water leaving the property, with surface water samples from below debris piles

containing 110,000 fecal coliform units per 100 milliliters (FCU/100 mL). May Creek is designated a class AA stream, and water quality standards are limited to a geometric mean of 50 FCU/100 mL. Water collected at the inflow on the upper portion of the property contained 230 FCU/100 mL (KCWLDRD 2003).

On January 15, 2003, King County submitted an environmental report (ERTS 531727) to Ecology noting that the property owner was operating a wrecking yard, a landfill, and, allegedly, a composting business, all without licenses or permits. The notification cited the following violations (Ecology 2003b):

- Containers of used vehicle fluids stored improperly, allowing fluids to spill onto the ground;
- Spills of vehicle fluids not cleaned up, resulting in large areas of contaminated soil;
- Improper storage of vehicle parts such as engines, transmissions, and batteries;
- Large amounts of garbage/debris/solid waste stored improperly on the site; and
- Improper vehicle crushing on the site.

On February 24, 2003, the PHSKC sent the property owner a Supplemental Notice of Health Code Violation, Civil Penalty Order, and Compliance Order for the following violations (PHSKC 2003):

- Storage of garbage and rubbish outside approved containers and failure to remove garbage on a weekly basis;
- Storage of excavated soil and fill materials containing solid wastes;
- Storage of yard wastes;
- Storage of excavated soil and fill materials containing solid wastes;
- Disposal and storage of solid waste without a valid permit;
- Storage of solid waste items not in clean, safe, nuisance-free containers; and
- Improper storage of bulky wastes including old appliances, junk metal, vehicle hulks, machinery parts, used tires, barrels, scrap wood, concrete chunks, and construction/demolition debris.

On August 24, 2006, the Washington State Patrol conducted a search of the May Creek Landfill property under a warrant, accompanied by staff from Ecology, PSCAA, and Washington State Department of Labor and Industries. Property conditions were similar to those previously observed. The property owner claimed to be manufacturing biodiesel on his property. Metal smelting was also observed. The Washington State Patrol charged the property owner with a gross misdemeanor for wrecking vehicles without a license. Ecology notified the property owner of the following dangerous waste compliance issues (Ecology 2016a):

- Failure to designate wastes;
- Failure to label spent antifreeze;
- Failure to respond to oil releases;
- Failure to mark used oil containers; and
- Failure to keep records documenting chlorinated fluorocarbons.



On March 1, 2011, Eastside Fire and Rescue responded to a call regarding the property and found a “massive garbage pile and homeowner burning household items” and an illegal burn of household items. They advised the property owner of the no-burn area and told him burning is not allowed (PHSKC 2014b).

On May 7, 2012, an anonymous caller reported “There is a giant wrecking yard owned by a [property owner] where the ground is covered in oil as well as draining diesel. The ground consists of dirt and gravel. There are some water runoffs with discarded car batteries in it as well” (Ecology 2003a).

On June 28, 2012, members of the Interagency Compliance Team conducted a joint visit to the May Creek Landfill property and were denied access by the property owner. The Interagency Compliance Team included staff from EPA, Ecology, Washington State Patrol, PSCAA, and King County. The property owner admitted to accepting wastes not generated on the property and to having fuel and oil spills. Later in November, staff from EPA, PSCAA, PHSKC, King County Solid Waste Division (KCSWD), and KCWLWD found conditions unchanged. Storm water runoff near the driveway entrance had a visible oil sheen (PHSKC 2014c).

On April 24, 2014, PHSKC conducted a site investigation and observed three to four vehicles, including a paving company vehicle, dumping solid waste on the property. There was run-off, described variously as milk-colored, at the bottom of the driveway. Neighbors stated that they regularly smelled plastic and metal burning five nights a week (PHSKC 2014a).

On October 29, 2014, PHSKC issued an environmental health assessment that included the following conclusions (PHSKC 2014b):

- The site owner was violating King County Board of Health code by illegally operating a non-permitted solid waste disposal and recycling site;
- Physical contact with surface water on site or leaving the site could be harmful to health;
- Site conditions presented a physical and safety hazards;
- Site conditions presented biological hazards including diseases from exposures to fecal matter or transmitted by mosquitoes and rodents;
- The landfill had no liners and did not meet grading requirements, so contaminants could leach to groundwater; and
- Waste incineration and metal smelting likely released chemicals and contaminated particles into the air.

A King County memorandum dated February 8, 2016, described wastes collected, stored, and piled at the site as including, but not limited to, “abandoned vehicles and vehicle parts; appliances and appliance parts; construction and demolition wastes such as wood, drywall, insulation, concrete, metal supports, roofing materials, carpet; discarded plastic, metal, and glass containers that contained food, chemicals, paint, and other liquid materials; bulk paints in containers; numerous discarded hot tubs; household wastes such as mattresses, furniture, CDs and DVDs, toys; yard waste, sod, and soil waste, and various other materials made of wood,

plastic, and metals.” While some sorting occurred, inspectors noted that much of this material was arranged indiscriminately and comingled across the site (PHSKC 2016).

## 2.6 Site Ownership

The current property owner acquired full ownership of the site on November 20, 2017, as part of a divorce settlement (KCDA 2019a). King County Department of Assessment records do not provide earlier ownership or sales data; however, based on historic documents concerning the site, the property owner appears to have owned or co-owned the site since at least 1993 (KCDA 2019b) and possibly as far back as 1977 (Ecology 2016a).

In April 2006, the property owner sold 2 acres along the western edge of the original property (KCDA 2019b). This 2-acre property is now parcel 0638100045, which was utilized during the 2018 and 2019 TCRA as a Support Zone with permission from the owner of that property.

## 2.7 Previous Investigations and Cleanups

Although the earliest apparent record of interaction between the property owner and County, State, and/or federal regulators appears to date back to 1993, available records demonstrate that beginning in early 2000, more regular contact took place between governing/regulatory agencies and the property owner. Complaints and inspections from 2000 forward provide some basic definition of the breadth and scope of non-permitted, on-site landfill activities, some of which are mentioned in Section 2.5 of this report. These records demonstrate that by 2000, acceptance of various waste streams was underway, and that such activity continues up to the writing of this report. Related activities for which complaints were received included regular waste burning; accepting and storing, at times well in excess of 100, junked vehicles on site including cars, busses, trucks, and tankers; and allowing for the disposal of general waste such as hot tubs, household waste, boats, fill dirt and construction debris, and vegetative waste. For a more thorough account of inspector’s observations, and the nature of complaints received by regulators, please refer to Appendix C (Timeline of Agency Activities Related to Parcel No. 063810-0031) of the report Environmental Health Assessment for Parcel No. 063810-0031 published by the Environmental Health Services Division of Public Health Seattle and King County (PHSKC 2014b).

In September 2015, King County Water Quality collected a sample of surface water runoff from the base of the property owner’s driveway. Table 2-1 lists metals concentrations that exceeded Washington State Model Toxics Control Act (MTCA) Method B cleanup levels:

Table 2-1 September 2015 Surface Water Exceedances		
Analyte	Sample Concentration (µg/L)	MTCA Method B Surface Water Cleanup Level (µg/L)
Arsenic	6.27	0.018
Copper	26.1	3.47
Iron	4,040	300
Lead	14.8	0.54

<b>Table 2-1 September 2015 Surface Water Exceedances</b>		
<b>Analyte</b>	<b>Sample Concentration (µg/L)</b>	<b>MTCA Method B Surface Water Cleanup Level (µg/L)</b>
Manganese	144	50
Zinc	70.1	32.3

Key:

µg/L = micrograms per liter

MTCA = Model Toxics Control Act

More recent activity involving EPA, Ecology, and other environmental and health agencies occurred in 2016 and again in 2018 in conjunction with this TCRA. Additional details on the 2016 and 2018 inspections and sampling events are included below.

### **2.7.1 EPA Sampling Event, February 2016**

In February 2016, START was tasked by EPA to conduct sampling of shallow soil and/or containers at the property, where illegal junkyard/landfill/composting activities were allegedly occurring. EPA and START entered the site on February 25, 2016, under a warrant with the Washington State Patrol, Ecology, and other government agencies. The warrant granted to these agencies only allowed access to the site for a single day, which limited the scope of the site visit and sampling activities.

Off-site fixed laboratory analyses for soil sampling included: volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), Target Analyte List (TAL) metals including mercury, total petroleum hydrocarbons (TPH) as gasoline, TPH as diesel, chlorinated pesticides, polychlorinated biphenyls (PCBs), and Toxicity Characteristic Leaching Procedure (TCLP) metals. The site was believed to have hazardous substances in containers. Samples collected from containers were screened using the First Step Method at the EPA Region 10 Logistics Center the day after field work. Off-site fixed laboratory analyses included a combination of TPH hydrocarbon identification, flashpoint, pH, water content, metals, and anions. Abandoned and operational heavy equipment, vehicles, boats, and trailers were found at the site. The property owner reportedly was disassembling metal items for scrap and has reportedly moved earth on the property (E & E 2016).

During the February 2016 sampling event, START collected a total of nine product/waste samples and 13 surface soil samples. Product/waste samples were subjected to hazard categorization testing and select samples were subject to additional off-site fixed laboratory analyses. A total of six samples were submitted for hydrocarbon identification (HCID) analysis, of which four contained petroleum product(s). Laboratory analytical results indicate two of the six samples were ignitable based on flashpoint analysis. These two samples did not contain petroleum hydrocarbons based on the HCID analysis. One sample exhibited a high pH but was not characteristic of corrosivity; however, TCLP metals results indicated concentrations of lead that indicated the product was toxic. These results indicated that Resource Conservation and Recovery Act (RCRA) characteristic waste was present on the site. EPA/START observed

hundreds of containers on site. The containers were mostly unlabeled, unsecured, haphazardly placed, exposed to the elements, and in many cases, evidence of leaking was observed. Based on visual assessment, field analyses, and laboratory analyses of samples from the visible containers, it was reasonable to conclude that dozens, perhaps hundreds, of the vessels likely contained hazardous substances and waste that potentially included ignitable, corrosive, and/or toxic materials (E & E 2016).

The soil samples were submitted for off-site fixed laboratory analyses and compared to MTCA Method A unrestricted land use criteria. Sample results indicated that two TAL metals (cadmium and chromium), two SVOCs (benzo[a]pyrene and total polynuclear aromatic hydrocarbons [PAHs], as a total toxicity equivalent concentration) and motor oil range organics were detected at concentrations above the site criteria. Chromium was also detected above the MTCA Method A cleanup level in the background sample and, therefore, may not be directly attributable to site activities. However, the presence of cadmium, benzo[a]pyrene, total PAHs, and motor oil range organics in soil samples at concentrations exceeding MTCA Method A criteria indicated that site activities have resulted in the release of these hazardous substances to the environment. Based on the volume and type of waste on the property and the wide distribution of soil contamination (discovered through a very limited sampling regime), EPA concluded that much of the original surface soil, currently inaccessible because it was buried to an unknown depth with waste, may have similarly been contaminated at concentrations in excess of MTCA Method A standards (E & E 2016).

### **2.7.2 Stormwater Sampling, Ecology, February 2016**

On February 25, 2016, as part of the single-day, multiple agency site visit, Ecology conducted a surface water sampling event. Four samples were collected, including two from ponded areas at the site (one from the southwest corner of the property and one located southwest of the residence), one from a pipe that outlet on the driveway, and one from an outfall pipe just before the water entered the ditch on Renton Issaquah Road SE. The samples were analyzed for metals, TPHs, and select VOCs. Surface water quality standards were exceeded for iron, lead, and zinc; human health criteria were exceeded for iron and manganese, while arsenic, iron and lead had elevated concentrations (Ecology 2016b).

### **2.7.3 May Creek Landfill Site Walk, July 2018**

On July 26, 2018, EPA met at the May Creek Landfill site with representatives from Ecology, King County, START, and the EPA Region 10 ERRS contractor to conduct a site walk. Areas investigated included the Bus/RV Area, Landfill Area, and Workshop Area; the Residential Area was not assessed during this site walk. START observed approximately 250 visible containers at the site, primarily including 1-gallon and 5-gallon containers along with approximately fifteen to twenty 55-gallon drums. Most of the containers did not have labels. There was no recognizable system of storing most containers safely or in a manner suggesting regular use or with care to prevent release. It was apparent that a large number of the containers that were observed on site by EPA in 2016 were missing or relocated. The property owner reported that he emptied various containers from the Bus/RV area onto wood chips (reportedly used for absorption) spread directly onto surface soil. The property owner additionally reported to have emptied containers with latex paint only, but it is unknown whether any of the emptied containers also included mixed waste. There were dozens of junked/abandoned vehicles at the site, including at least four

vehicles capable of carrying several thousand gallons of liquids (two fire trucks, a jet fuel carrier, and a small tanker truck). The volume of fuel in junked/abandoned vehicles was not assessed with the exception of the jet fuel carrier, which was only assessed visually and by knocking on the tank wall (there was no apparent sight glass level indicator and it did not sound as though it was full). Evidence of container releases were observed, including actively leaking containers and stained soil. Suspect asbestos-containing material was observed throughout the site. Many parts of the site were not safely accessible (e.g., inside overly packed buses and RVs), and it was possible that containers were buried and intermixed with solid waste based on how containers were managed on the surface (E & E 2018a).

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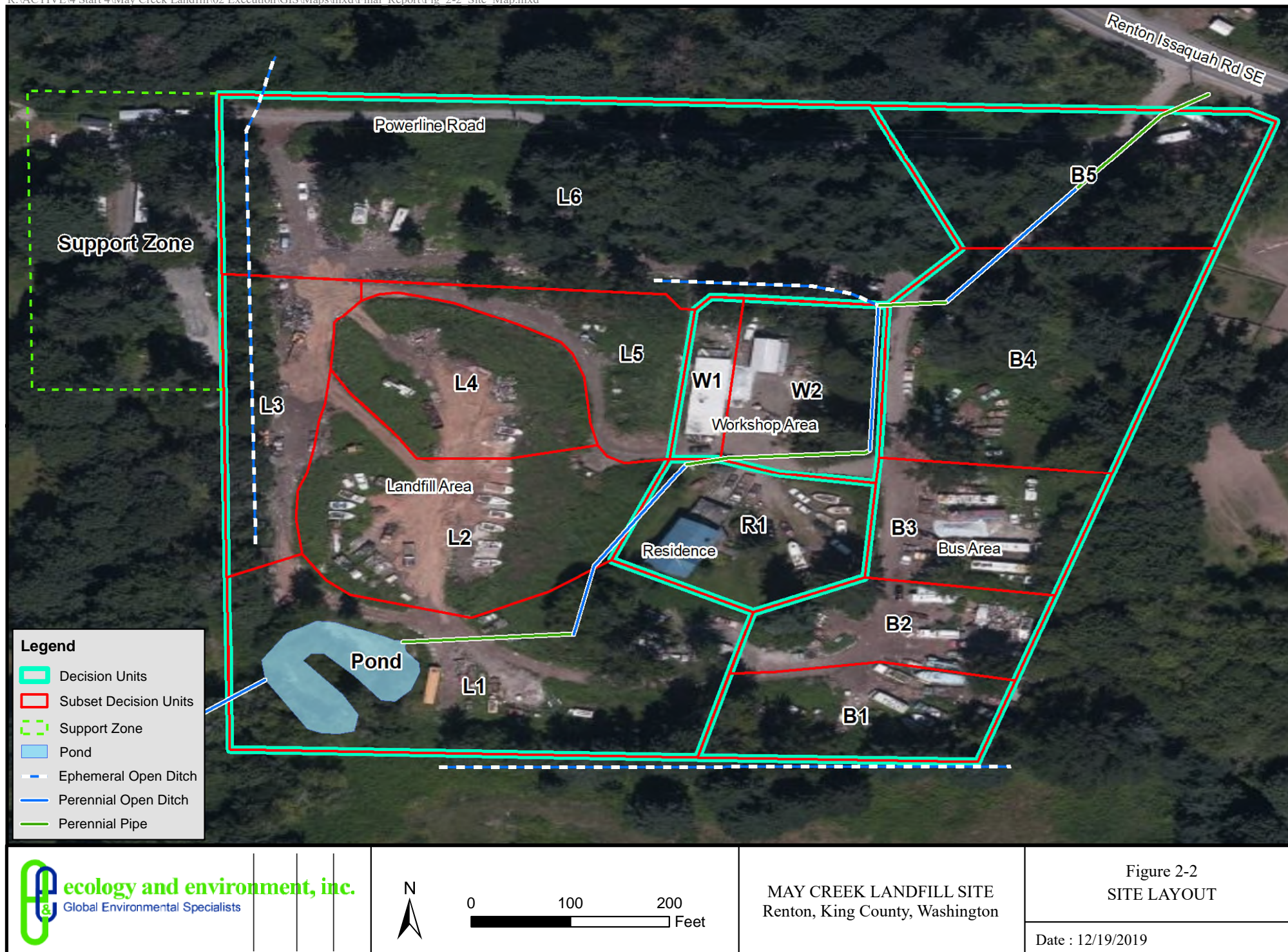
Service Layer Credits: USGS The National Map: National Boundaries Dataset, National Elevation Dataset, Geographic Names Information System, National Hydrography Dataset, National Land Cover Database, National Structures Dataset, and National Transportation Dataset; U.S. Census Bureau - TIGER/Line; HERE Road Data. Data Refreshed July, 2017. Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the





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# 3 Time-Critical Removal Action Scope, Organization, and Schedule

## 3.1 Time-Critical Removal Action Scope Overview

The TCRA was performed during November and December of 2018 and July and August of 2019. Access to the site was provided by an Administrative Warrant for Entry, Inspection, and Response issued by the United States District Court Western District of Washington on November 11, 2018, for the first phase of the TCRA and was followed by an Order Granting Summary Judgment on May 20, 2019, for the second phase of the TCRA. The primary removal activities during each phase are summarized below. Details of these removal activities and results are provided in Sections 5 and 6.

The first phase of the TCRA focused on characterization and disposal of the unknown containers of potential hazardous substances at the site. Additionally, because previous sampling activities were limited in scope (refer to the 2016 sampling event [Section 2.7.1], in which EPA, Ecology, and King County had a single day to complete site activities), the TCRA included additional assessment activities to characterize the site for potential releases of hazardous substances.

### **Summary of Fall 2018 Time-Critical Removal Activities (Section 5)**

- Assessed and removed unknown containers with potentially hazardous substances.
- Performed an asbestos survey of landfill debris located on the ground surface.
- Excavated test pits in the main Landfill Area and collected samples of subsurface soil for analyses.
- Performed a limited assessment of surface and shallow surface soils in areas of potential impact in the Landfill, Workshop, and Bus/RV areas.
- Collected samples of surface water from the on-site drainage channels.

EPA returned to the site in Summer 2019 to conduct the second phase of removal activities. The results from the Fall 2018 sampling activities identified several areas of the ground surface that exceeded EPA screening levels and/or Washington MTCA cleanup levels. Based on these results, EPA performed additional removal activities to address these areas of contamination. Specific removal activities performed during Summer 2019 phase are summarized below.

### **Summary of Summer 2019 Time-Critical Removal Activities (Section 6)**

- Excavated areas of contaminated soil in the Workshop, Bus/RV, and Landfill Areas, based on data collected during the 2016 and 2018 sampling events;
- Performed additional characterization of these contaminated areas during excavation, and other contaminated areas encountered during the TCRA (specifically within the B3 DU);
- Installed seven boreholes throughout the site; collected and analyzed subsurface soil samples; and
- Completed the boreholes as monitoring wells and performed groundwater sampling.

### 3.2 Key Organization Roles

The TCRA was performed by EPA Region 10 and its contractors. The key participants are described below:

**On-Scene Coordinator (OSC):** The TCRA was performed under the supervision of EPA OSC Jeffrey Fowlow.

**Emergency and Rapid Response Services (ERRS):** TCRA cleanup work was performed by EQM under the EPA Region 10 ERRS contract.

**Superfund Technical Assessment and Response Team (START):** On-site technical and sampling support was provided by E & E under the EPA Region 10 START contract.

### 3.3 Coordination with Local and State Government Agencies

Throughout the TCRA EPA coordinated closely with multiple local and state government entities, including stakeholder agencies such as Ecology and King County. Representatives of these agencies visited the site periodically to observe the removal progress and site operations.

The United States Marshals Service provided on-site security during the initial site walk on November 16, 2018. The Washington State Office of the Attorney General provided background site documentation, mapping services, and a single oil sample they had collected from containers within the B1 decision unit prior to EPA's 2018 on-site involvement. Several employees from KCSWD visited the site in 2019 to oversee removal operations and are expected to work with the property owner in the future to properly dispose of solid waste. Ecology worked closely with EPA during the installation of monitoring wells and are expected to perform groundwater sampling on a quarterly basis.

### 3.4 Project Schedule

Table 3-1 summarizes the project schedule during the 2018 and 2019 assessment and removal activities.

Table 3-1 Project Schedule	
Activity	Date
EPA, ERRS, and START site walk	November 16, 2018
ERRS and START 2018 mobilization	November 17, 2018
Completion of 2018 field work	December 14, 2018
Site walk to finalize monitoring well locations	June 18, 2019
ERRS and START 2019 mobilization	July 8, 2019
Completion of 2019 field work	August 8, 2019

## 4 Removal Sampling Activities

Throughout the Fall 2018 (Section 5) and Summer 2019 (Section 6) removal activities, START collected samples to support removal decisions and to further characterize the potential threat that the site posed to human health and the environment. Samples were collected in accordance with Site-Specific Sampling Plans (SSSPs) prepared by START (E & E 2018b) (E & E 2019). An overview of the sample collection and analytical methods are provided in this section, with additional details provided in Sections 5 and 6. Analytical data summary tables are included in Appendix B (Fall 2018) and Appendix C (Summer 2019). Data validation memoranda and analytical data reports are included in Appendix D.

### 4.1 Summary of Sampling and Analyses

Table B-1 and Table C-1 provide a summary of the samples collected during the TCRA and includes sample collection details and analytical parameters. A summary of the samples and analyses is provided below.

#### November/December 2018

- 210 hazardous categorization samples (1,659 containers assessed)
- 14 subsurface soil samples from eight deep test pits and six shallow test pits
  - TPH-HCID by Northwest total petroleum hydrocarbon (NWTPH)-HCID (14 samples)
  - Pesticides and PCBs by EPA SW-846 8081/8082 (14 samples)
  - SVOCs by EPA SW-846 8270 (14 samples)
  - TAL Metals including mercury by EPA SW-846 6000/7000 (14 samples)
  - VOCs by EPA SW-846 8260 (14 samples)
- 16 surface soil samples including 3 composite samples and 13 discrete grab samples
  - TPH-HCID by NWTPH-HCID (13 samples)
  - Oils and Greases by EPA SW-846 1664
  - Pesticides and PCBs by EPA SW-846 8081/8082 (14 samples, 1 sample analyzed only for PCBs)
  - SVOCs by EPA SW-846 8270 (13 samples)
  - TAL metals including mercury by EPA SW-846 6000/7000 (11 samples)
  - VOCs by EPA SW-846 8260 (14 samples)
  - Dioxins and Furans by EPA SW-846 8290 (2 samples)
- 12 surface water samples
  - TPH-HCID by NWTPH-HCID (12 samples)
  - Pesticides and PCBs by EPA SW-846 8081/8082 (14 samples)
  - SVOCs by EPA SW-846 8270 (12 samples)
  - TAL metals including mercury by EPA SW-846 6000/7000 (12 samples)
  - VOCs by EPA SW-846 8260 (12 samples)
- 34 grab building material samples
  - Asbestos concentrations by Polarized Light Microscopy (PLM) using EPA Method 600/R-93/116 (34 samples)
- Seven trip blanks:
  - VOCs by EPA SW-846 8260 (7 samples)

These analyses were performed by the following subcontracted laboratories:

- Hazardous categorization samples were analyzed on site by START within the Support Zone.
- Dioxin/Furan analyses were performed by Cape Fear Analytics, Wilmington, North Carolina.
- All TPH analyses were performed at Test America, Tacoma, Washington.
- Oil and grease analyses were performed at Test America, Nashville, Tennessee.
- Asbestos analyses were performed by A & B Labs, in Houston, Texas.
- All other analyses were performed at EMT Laboratories, in Morton Grove, Illinois.

### **July/August 2019**

- 83 surface and subsurface soil samples
  - TPH-extended diesel range (Dx) by field analytical method NWTPH-Dx (44 samples)
  - TPH-Dx by NWTPH-Dx (76 samples)
  - TPH-gasoline range (Gx) by NWTPH-Gx (23 Samples)
  - Pesticides by EPA SW-846 8081/8082 (13 samples)
  - PCBs by EPA SW-846 8081/8082 (31 samples)
  - SVOCs by EPA SW-846 8270 (20 samples)
  - TAL Metals including mercury by EPA SW-846 6000/7000 (31 samples)
  - VOCs by EPA SW-846 8260 (20 samples)
  - Dioxins and Furans by EPA SW-846 8290 (2 samples)
  - TCLP RCRA Metals by EPA Methods 6010C (ICP-AES) and 7471 (CVAA) (2 samples samples)
  - TCLP SVOCs by EPA SW-846 8270 (2 samples)
  - TCLP VOCs by EPA SW-846 8260 (2 samples)
  - Ignitability by EPA Method 1020A (2 samples)
- 15 borehole soil samples
  - TPH-Dx by NWTPH-Dx (15 samples)
  - TPH-Gx by NWTPH-Gx (15 Samples)
  - Pesticides and PCBs by EPA SW-846 8081/8082 (15 samples)
  - SVOCs by EPA SW-846 8270 (15 samples)
  - TAL Metals including mercury by EPA SW-846 6000/7000 (15 samples)
  - VOCs by EPA SW-846 8260 (15 samples)
- 8 groundwater samples
  - TPH-Dx by NWTPH-Dx (8 samples)
  - TPH-Gx by NWTPH-Gx (8 samples)
  - Pesticides and PCBs by EPA SW-846 8081/8082 (8 samples)
  - SVOCs by EPA SW-846 8270 (8 samples)
  - TAL metals including mercury by EPA SW-846 6000/7000 (8 samples)
  - VOCs by EPA SW-846 8260 (8 samples)



- 13 trip blanks
  - TPH-Gx by NWTPH-Gx (3 samples)
  - VOCs by EPA SW-846 8260 (13 samples)

These analyses were performed by the following subcontracted laboratories:

- Dioxin/Furan analyses were performed Cape Fear Analytics, Wilmington, North Carolina.
- All other analyses were performed at Test America in Tacoma or Spokane, Washington.

## 4.2 Sampling Methodology

Throughout the Fall 2018 and Summer 2019 field work, START collected environmental samples to help support removal decisions. Sampling was intended to document potential environmental impacts as a result of past site operations and, therefore, samples were generally collected at locations that targeted areas with a high perceived risk of contamination.

Soil and water samples were placed in appropriate containers, including pre-cleaned glass jars, bottles, and vials. As appropriate, materials unsuitable for analysis such as grass, leaves and other vegetative material, rocks, and other debris were removed from samples before being placed into sample containers. Environmental samples, including soil, surface water, and groundwater, were stored on ice in coolers continuously maintained under the custody of START personnel until the samples were shipped or hand-delivered to an off-site laboratory.

Surface soil samples (generally 0 to 6 inches below ground surface [bgs]) were collected using dedicated stainless-steel spoons and bowls or dedicated plastic spoons and bowls for metals analysis. Collected material was placed in a dedicated bowl, thoroughly homogenized, and placed into a labeled container. For composite samples, subsamples from multiple locations were collected and placed in the bowl before homogenization. TPH-Gx and VOC aliquots were collected directly from the sampling locations using coring devices and pre-preserved containers provided by the laboratory.

Subsurface soil samples from test pits (Sections 5.4 and 5.5) were collected by START and ERRS using standard soil sampling devices as well as heavy equipment. For the landfill test pits in particular, samples were generally collected from materials encountered at or below the interface between the landfill deposits and underlying native soils. In order to safely reach the soil at these depths for sampling, they were collected using the excavator operated by ERRS. While sampling, START was careful to collect soils from the center of the excavator bucket to minimize the chance of sampling materials that had come in contact with the bucket.

Subsurface soil samples from boreholes (Section 6.3.1) were collected after the soils were field-screened and logged by the START geologist for lithology. Subsurface soils were screened using visual and olfactory indicators (i.e., presence of staining, sheening, and odors) and with a photoionization detector (PID)/flame-ionization detector (FID) to measure VOC concentrations. When field screening revealed the potential presence of contaminants in native soils, that interval was targeted for sampling. Samples were collected directly from a decontaminated split-spoon sampler at the targeted sampling interval using stainless-steel spoons.

Rinse blanks were collected from non-dedicated sampling equipment to determine the effectiveness of equipment decontamination procedures. Rinse blanks were collected by pouring deionized water directly over the decontaminated sampling equipment and collecting the water in appropriate sample containers.

Groundwater samples (see Section 6.3.3) were collected from installed monitoring wells consisting of dedicated 2-inch-diameter polyvinyl chloride (PVC) riser pipe with a schedule 40 slotted screen, with a surrounding filter pack of 12-20 Colorado (or equivalent) silica sand.

Water level measurements were taken before monitoring well purging began. Low-flow purging and sample collection techniques were then utilized to minimize aquifer disturbance and the volume of investigative-derived waste (IDW) generated. A centrifugal submersible pump was used to purge and sample the monitoring wells. The sampling pump was set approximately 1 foot below the water table. During the purging process, water quality parameters (pH, temperature, turbidity, oxidation reduction potential, and conductivity) were monitored every 2 to 4 minutes, along with the water level. The purging pump rate was set between 0.1 and 0.5 liters per minute to limit the sustained drawdown to a maximum of 4 inches. A decrease in water level greater than 4 inches was allowable if the water level stabilized and remained stable or increased during the remainder of purging and sampling. Low-flow sampling commenced once water quality parameters stabilized to the tolerances outlined below:

- $\pm 0.1$  standard unit for pH;
- $\pm 3$  percent (%) for temperature and specific conductance;
- $\pm 10\%$  for dissolved oxygen; and
- $\pm 10\%$  for turbidity or is less than 10 nephelometric turbidity units (NTUs).

Samples were pumped directly into pre-labeled sample containers and preserved as required upon sample collection completion, with the exception of TPH-Gx and VOC sample vials, which were preserved prior to sample collection.

Surface water samples (see Section 5.6.1) were collected by hand-dipping sample containers into the water, using a peristaltic pump, or if the drainage pipe was elevated, from water running directly out of the pipe. At locations where surface water was shallow (less than 6 inches deep), or there was no elevated discharge pipe, surface water samples were collected using a peristaltic pump and dedicated Teflon-lined hose to pump water directly into the sampling bottles. Concurrent water quality data was also collected from each sample location using a Horiba U50 water quality instrument. Data collected included dissolved oxygen, pH, temperature, conductivity, oxidation-reduction potential, and turbidity.

### **4.3 Site Screening Levels**

Throughout the Fall 2018 and Summer 2019 removal activities, analytical results were compared to EPA's Regional Screening Levels (RSLs) and Removal Management Levels. Results were also compared to Washington State MTCA cleanup levels.



## 5 Fall 2018 Removal Activities

By November 15, 2018, EPA had successfully obtained a property access warrant valid from November 16 through December 16, 2018. On November 16, 2018, the OSC, ERRS, START, and two federal marshals participated in an initial site walk to identify apparent hazards and coordinate chemical removal and environmental sampling. The site walk identified drums, jars, buckets, tanks, tankers, cylinders, plastic storage containers, and more in various states and capacities. Generally, containers were not properly labeled, segregated, or stored, with many exposed to weather and sunlight. During the site walk, EPA identified locations where visible paint dumping had occurred in the B3 DU.

### 5.1 Site Setup and Preparation

#### 5.1.1 Site Preparation

By November 17, 2018, EPA had chosen a Support Zone location on the adjacent property to the west (see Section 2.2.1 and Figure 2-2). At the beginning of the removal activities, ERRS partially graded this property for office and work trailers as well as for vehicle and equipment movement.

#### 5.1.2 Command Post Sampling

On November 19, 2018, START collected surface soil samples from the portion of the Support Zone/Command Post area where waste management and hazardous categorization work was to occur (Figure 5-1). These samples were not intended to represent the entire Command Post area, but rather were focused on the area of the Command Post property used to enter and exit the May Creek Landfill site and where the waste assessment and handling would occur. These samples were collected to represent background conditions and document the environmental condition of surface soils in this area prior to the start of field activities. These samples included two four-part composite samples (CP01 and CP02), each submitted for HCID, PCB, pesticide, and SVOC analyses. Two co-located grab samples (CP01-V and CP02-V) were also collected from the areas represented by each composite sample; the grab samples were submitted for VOC analysis (see Table B-2).

Surface soil samples from the Command Post were analyzed for VOCs, SVOCs, metals, PCBs, pesticides, and petroleum hydrocarbons. Sample location CP02 returned with several SVOCs exceeding action levels: benzo[*a*]anthracene, benzo[*a*]pyrene, and benzo[*b*]fluoranthene. These results are presented in Table B-2.

#### 5.1.3 Health and Safety

Prior to mobilization, ERRS and START prepared site-specific health and safety (H&S) plans for the TCRA. At the beginning of removal activities, the OSC led an initial H&S meeting with ERRS and START personnel, and topics included a description of the site's history and background, the chemical and physical hazards posed by the site, appropriate personal protective equipment (PPE), and other H&S practices. For the duration of the removal activities, site staff began each day with a H&S meeting in which daily tasks and associated risks and H&S practices were discussed.

At the beginning of field work, START used a gamma radiation micro-roentgen meter Ludlum Model 192 to survey for radioactive materials and up to three MultiRAE Pro Six Gas Monitors to survey the area for oxygen, carbon monoxide, VOCs, lower explosive limit, and hydrogen sulfide. All concentrations detected were below safety action levels; therefore, container recovery and overpacking was generally conducted in Level D PPE. START continued to perform air monitoring throughout the duration of the removal activities to monitor for any changes in site conditions.

## **5.2 Container Assessment and Removal**

One primary goal of the TCRA was to assess and remove containers of potential hazardous substances. To achieve this objective, EPA and its contractors surveyed the main site DUs (Landfill, Bus/RV, and Workshop Areas) for containers of chemicals and/or wastes. Once found, the containers were removed from their initial location to be inventoried, documented, classified, and then properly disposed of. Details of each step are provided below.

### **5.2.1 Container Documentation and Inventory**

After defining decision units and screening the property for hazardous gases and radiation, START systematically inventoried containers and performed on-site analysis, known as First Step, on unknown materials to determine their hazardous class. Based on this information, ERRS then segregated and secured compatible materials for transportation and disposal. The main objective of the START inventory was to document the number, type, and chemical content of the containers to be removed from the site along with the physical state of the chemical and volume or mass of the substance present.

### **5.2.2 Hazardous Categorization Sampling**

Unlabeled containers or containers whose contents were suspect or unknown were set aside within each decision unit by ERRS for START. Each container was then given a unique identifier based on its location and sequence of collection, and this identifier was written onto the container itself. START collected representative samples of the containers into 4-ounce glass jars using a dedicated drum thief, scoop, or pipet, then labeled the glass jar with its unique identifier. Groups of containers that could reasonably be assumed to be similar wastes were batched together. Of these batches, 30% or greater of the contents, by container, were sampled for identification. From these samples, First Step analysis was performed. The purpose of First Step analysis was to identify the appropriate hazard class of these unknown chemicals so that they could be properly manifested and transported off site for disposal. This analysis utilized a series of chemical and physical tests involving wet chemistry, thermal and ignition testing, and infrared spectroscopy. Once unknown samples were identified, a hazard classification was assigned to the sample and logged into a digital container inventory form. A total of 1,659 containers were identified and documented through the First Step process. Waste streams were broken into seven hazard categories for transportation and disposal; a breakdown of these categories is presented Table 5-1.

Following the First Step hazard categorization, the samples were returned to their original containers, and then the containers were labeled and integrated by ERRS into the appropriate waste stream and overpacks.

### 5.2.3 Waste Disposal

Once all containers were classified and inventoried by START, ERRS overpacked the containers for transportation and disposal at a licensed facility. In this process, original, intact containers were packed together primarily into 55-gallon drums. Inert sorbent material was poured into the void space between containers to prevent damage and to absorb any potential leaks, and the overpack drums were then sealed, labelled, and staged within the Support Zone for shipment.

ERRS and START generated a waste manifest containing the total container inventory (Appendix E) and the amount and type of chemical contents within each overpack. Each waste manifest stated the overpack's container contents, including the chemical name, hazard class, container type, physical state, and container weight. Table 5-2 summarizes waste destination into three broad categories: off-site disposal, rendered useless and left on site, and left in place. The final individual containers START sent off site was 1,450 out of 1,659 that were processed. Of the 209 containers left on site that were originally found to contain hazardous substances, 203 were rendered useless (e.g., a propane tank that was drained and rendered inoperable), and six were left in place (e.g., a high value 500-gallon tank that was drained of its contents).

All hazardous waste processed for off-site disposal at the May Creek site was overpacked or bulked and ready for transport by December 14, 2018.

<b>Table 5-1 Containers by Hazard Class</b>	
<b>Hazard Class</b>	<b>Count</b>
Class 2 – Gases	276
Class 3 – Flammable and Combustible Liquids	290
Class 5 – Oxidizing Substances and Organic Peroxides	4
Class 6 – Toxic and Infectious Substances	24
Class 7 – Radioactive Materials	1
Class 8 – Corrosive Substances	28
Class 9 – Miscellaneous Hazardous Materials	1,036
<b>Total</b>	<b>1,659</b>

<b>Table 5-2 Containers by Fate</b>	
<b>Fate</b>	<b>Count</b>
Off-site disposal	1,450
Rendered useless, left on site	203
Left in place	6
<b>Total</b>	<b>1,659</b>

Note: Containers left in place posed little risk to the environment after processing and/or were considered a high value item by the owner.

On December 11, 2018, during the movement of consolidation drums within the western section of decision unit L6, an excavator accidentally tipped over a 55-gallon, open-top metal drum being used as a bulk container for oily water. This liquid had been consolidated into this drum from tanks and containers recovered across the May Creek Landfill property. It is unknown exactly how much of this material was spilled as the container had not yet been documented, but it was still approximately a quarter full after the incident. Immediately after it was knocked over, ERRS excavated the impacted ground surface and placed the material into a polyethylene-lined storage area. The material was later sent off site for disposal as non-hazardous waste. START collected two samples during this event; one from the excavated contaminated soil and the other from the liquid product remaining in the drum (Table B-8).

### **5.3 Asbestos Survey**

On November 19 and 20, 2018, three START Asbestos Hazard Emergency Response Act-certified building inspectors performed an inspection for suspect asbestos-containing materials (ACM) at the May Creek Landfill site, collecting a total of 30 bulk samples for analysis. These two days of sample collection were supplemented by the collection of four additional samples on November 30, 2018. The purpose of the inspection was to survey the landfill and waste disposal areas throughout the site for the presence of ACM to determine if asbestos was a health and safety concern for site workers and to determine whether asbestos was a common waste stream in the landfill debris. The asbestos survey did not include the residence, permanent structures at the Workshop Area, or intact or potentially occupied RVs. The survey included only materials that were accessible at the surface of the landfill and other disposal areas.

START collected a total of 34 bulk samples of suspect materials. All samples were collected by hand or using decontaminated hand tools, and placed into dedicated, clean, labeled bags. One or more bulk samples were collected from each of the six DUs in the Landfill Area, three of the DUs in the Bus/RV area, and three samples from the Workshop Area. The suspect materials sampled in these DUs included brake pads, gaskets, multiple types of roofing material, pieces of wallboard, thermal sheeting, floor tile and mastic, electrical wire casing, boat flashing, sheet vinyl flooring, and felt paper. In general, these suspect materials were present on the ground surface as small, discarded pieces intermingled within the landfill and other waste debris.

START submitted the bulk samples to a National Voluntary Laboratory Accreditation Program certified laboratory to be analyzed for asbestos by PLM (Refer to Table B-9 in Appendix B for results). Of the 34 samples collected for asbestos analysis across the May Creek Landfill, only two contained asbestos. One sample of a piece of wallboard was collected from the L4 DU; one layer contained 4 to 9% chrysotile, while the other layer contained no asbestos. The second sample, from the L6 DU, was a piece of flooring tile in which one layer had 4 to 9% chrysotile, while the other layer contained 16 to 20% chrysotile. Both ACM samples represented small quantities of isolated debris. Based on these results, EPA did not believe that the presence of asbestos in the landfill and waste disposal areas warranted further attention during the removal activities.

## 5.4 Landfill Test Pits

An ERRS equipment operator excavated a total of eight test pits within the Landfill Area DU. The test pits were advanced from the landfill surface to the landfill/native material interface, encountered between 1.5 and 25.0 feet bgs (Figure 5-2). Test pits were advanced to characterize the type and quantity of materials disposed of at the landfill site. Two START team members, including a START geologist, oversaw the test pit excavation, recorded field observations, and collected samples of subsurface soil. Table 5-3 provides a list of landfill test pits and a summary of key details for each. In three of the eight test pit locations, liquid was observed seeping from the sidewalls, indicating groundwater movement through the artificial landfill material. Additional details for each test pit, including a summary of the observations recorded by the geologist, are presented in Appendix F.

After field screening and lithologic/waste profile logging were complete, one soil sample was collected from the bottom of each test pit to assess whether native soils had been impacted by the landfill operations. Test pit samples were submitted for HCID, PCB, SVOC, TAL metals, VOCs, and dioxins and furans. Table B-3 in Appendix B includes analytical results from the samples collected.

The analytical results from the landfill test pits indicated that all samples contained at least one compound that exceeded site screening levels. All test pits besides TP02 and TP03 exceeded levels for arsenic, and all test pits besides TP01 exceeded for thallium. It is likely that the exceedances of arsenic and thallium in these test pits are similar to background concentrations, given that they were detected at similar levels in soil from across the site.<sup>1</sup> TP05 also exceeded for 1,2-dibromo-3-chloropropane, a known soil fumigant. Note that this compound was detected with an estimated value less than the reporting limit.

Table 5-3 Landfill Test Pits				
Test Pit	DU	Depth to Native Soil (feet bgs)	Seeping Sidewalls	Sample Number
TP01	L4	20.0	No	18111105
TP02	L4	24.0	Yes	18111106
TP03	L2	16.5	Yes	18111107
TP04	L2	25.0	No	18111108
TP05	L3	1.5	No	18111110
TP06	L6	15.0	No	18111111
TP07	L5	13.0	No	18111112
TP08	L1	11.5	Yes	18111113

Key:

Bgs = below ground surface

DU = decision unit

<sup>1</sup> Because arsenic and thallium were detected consistently across the site at concentrations similar to background, their exceedances in soil will generally not be discussed in this report.

## **5.5 Surface Soil Sampling and Shallow Test Pits**

Samples locations from the December 2018 field event were chosen based in part from results of the 2016 sampling event (E & E 2016), as well as from visual and olfactory observations of the site to target likely locations of contamination. Additionally, locations where activities with potentially hazardous substances likely took place (e.g., workshops, vehicle or container storage areas, and locations where tanks were found) were also targeted for sampling (Figure 5-3).

Between December 10 and 12, 2018, START collected surface soil and shallow subsurface soils from the both Workshop DUs, one Bus/RV Area DU, and one of the Landfill Area DUs. A total of 17 soil samples were collected from these areas, including 11 samples from 0 to 6 inches bgs, and six samples from 12 to 24 inches bgs. Surface soil samples were hand-collected directly from the ground surface, while the shallow-subsurface soil samples were collected using an ERRS-operated mini-excavator. Similar to the deep test pit samples, samples collected from the mini-excavator were collected directly from the excavator bucket, taking care not to collect soils that had come in contact with the excavator bucket.

All samples collected from these areas were submitted for HCID, PCB, pesticide, SVOC, VOC and TAL metals analyses. Two of the surface soils were also submitted for dioxin/furan analysis. The one sample collected from the Bus/RV area was also analyzed for oil and grease.

Within the Workshop Area (decision units W1 and W2), 12 surface soil samples were collected. Of these, two exceeded screening levels for cadmium (W102SS01 and W201SS01), one for lead (W102SS01), one for diesel (W104SS01), two for motor oil (W104SS01 and W201SS01), and one for dioxins (W203SS01) (Table B-4; Figure 5-4).

Within the Bus/RV area (DU B1), a single surface soil sample was collected. This sample exceeded site screening levels for diesel and motor oil (Table B-5; Figure 5-5). Two additional samples were collected in DU B3 from an area where paint had apparently been released to the ground and mixed with wood chips. These samples were intended as waste disposal profile samples and were submitted for a selected list of analytical parameters (the VOCs benzene, toluene, ethylbenzene, and xylenes [BTEX] and RCRA metals). These samples did not return with any results over site screening levels (Table B-8; Figure 5-3).

Within the Landfill Area (DU L2), four surface soil samples were collected. Of these four, two had results exceeding site screening levels for motor oil (L201SS01 and L201SB12) (Table B-5; Figure 5-6).

## **5.6 Surface Water Activities**

### **5.6.1 Surface Water Sampling**

On December 11, 2018, START collected surface water samples from surface water bodies and drainage paths on and adjacent to the May Creek Landfill site. In order to maximize surface water flow and volume on the site, sampling was scheduled to occur on a day with rainfall. Twelve surface water samples, including 11 field samples and one field duplicate, were collected

from 11 locations. To ensure that sampling at upstream locations did not create conditions with the potential to affect results at downstream locations, surface water sampling began at the most downgradient sampling location on the site and moved to successive upstream locations.

The locations of the surface water samples are indicated on Figure 5-7. Samples were collected from locations within the main drainage ditch on the downgradient side of the property (SW07, SW08, and SW09), the portion of the drainage ditch that contained standing water generally west of the residence (SW04 and SW05), and from the pond located on the southwest of the site (SW02). Two additional samples were collected of water discharging from the pipes that connected the southwestern pond to the central area of standing water (SW03), and the central area of standing water to the main drainage channel on the downgradient side of the property (SW06). To represent background conditions, sample SW01 was collected from a plastic corrugated pipe at a location upgradient of the site and, therefore, unlikely to be affected by landfill operations.

Two additional surface water samples of opportunity were also collected during the sampling event. The first sample was collected from water discharging within a separate drainage ditch north of the residence (SW11). While this drainage channel discharged to the site's main drainage between the locations SW07 and SW08, minimal water was flowing in this ditch at the time of sampling. The second surface water sample (SW10) was collected from a small depression with standing water located near the northwest corner of the site. Sample location SW10 was situated approximately 20 to 30 feet from the driveway between the Command Post and May Creek Landfill properties and did not connect to the other drainage channels on the site.

Sample collection details for the surface water samples, including sample times, visual observations and conditions, water quality data, and the measured flow rates, are provided in Table 5-4. All surface water samples were submitted for HCID, PCB, pesticide, SVOC, VOC and TAL metals analyses. The analytical results for the surface water samples are summarized in Tables B-6 and B-7 in Appendix B.

Motor oil was detected at every surface water sample location except for SW03, with generally higher concentrations detected above screening levels at SW04 and locations downstream from it (Table B-7, Figure 5-7). Diesel was also detected at elevated concentrations above screening levels at the locations downstream of SW04. Additionally, a visible sheen was observed at many surface water locations and on surface water runoff throughout site operations.

### **5.6.2 Storm Drain Inspection**

On December 13, 2019, an ERRS subcontractor (Emerald City Sewer Inspection) performed video inspections of the known and accessible underground storm drains on the May Creek Landfill property (Figure 2-2). This included five separate sections of underground pipe, numbered from the highest elevation pipe (1) to the lowest elevation (5). A description of these pipes and a summary of the video inspection results are provided below.

- Pipe 1: Originating from the pond on the far southwest corner of the property in L1, leading under an unpaved road, which is the main access road to the Landfill Area from the southeast, with an outlet close to the southwest of the property's main residence.

- A significant blockage was found in the center of the pipe and the camera was unable to make a single pass from one end to the other. The blockage began approximately 35 feet from the inlet of the pond and ended approximately 22.5 feet from the pipe's outlet. Water was flowing out of the blockage, but since the state of the central portion of pipe (directly under the unpaved road) was unknown, water could be exiting and entering from different pathways.
- Pipe 2: Originating from the north end of the trough running on the west side of the property's main residence, with an outlet into a catch basin/junction box on the corner of the residence's driveway.
  - At approximately 10 feet from the outlet end of the pipe, there was change in the type of pipe used or pipe offset, which did not allow for the camera to continue to the upstream portion of the pipe, due to it catching and stopping at the offset. However, the pipe did seem to be unblocked, based on the significant amount of water flowing through it.
- Pipe 3: Originating from the same catch basin/junction box that Pipe 2 outlets into, this pipe runs under the unpaved road between the residence and the workshops, with an outlet at the intersection of decision units W2, B3, and B4, on the corner of where the unpaved driveway turns up towards the main residence.
  - At approximately 56 feet from the pipe inlet, a pipe connection and offset were found. At approximately 65 feet from the inlet, a blockage was found. From the outlet of this pipe, moving upstream, a sleeve joint connecting two different pipes was found, and a blockage was found at approximately 35 feet from the outlet end.
- Pipe 4: Originating from where the W2, B4, and L6 DUs intersect, within a surface water channel, this pipe runs under one of the unpaved driveways on the property, with an outlet on the other side, close to the border of B4 and B5.
  - From the outlet end, moving upstream, a blockage was found at approximately 14 feet.
- Pipe 5: This pipe runs along the final section of unpaved driveway that connects to Renton Issaquah Road, terminating into the ditch on the south side of the road.
  - At approximately 54 feet upstream from the outlet end of the pipe, a sleeve joint connects two pipes of different sizes. It is assumed that at least three different pipes of different types and sizes were used to make this section of drain.

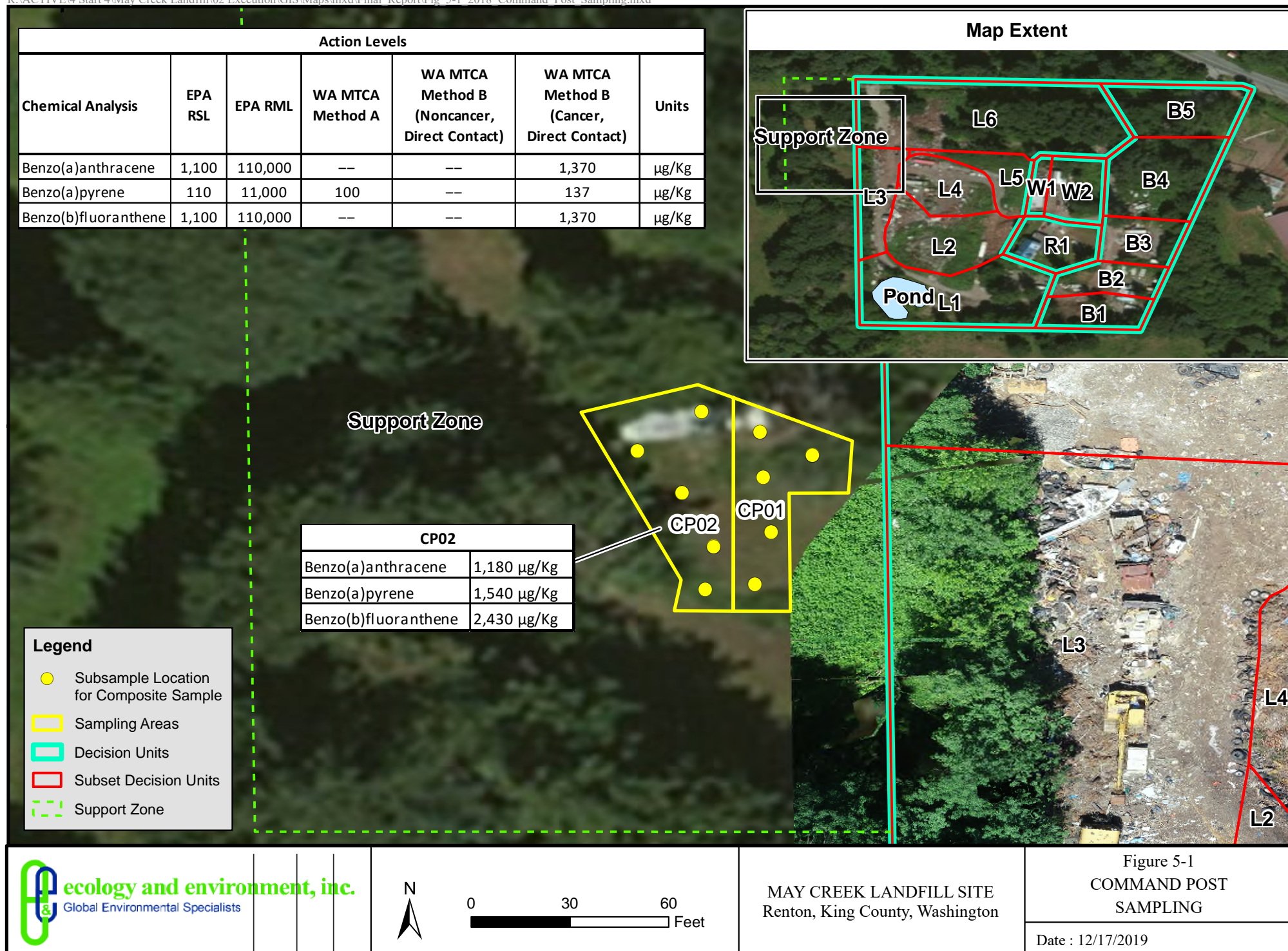


**Table 5-4 Surface Water Quality**

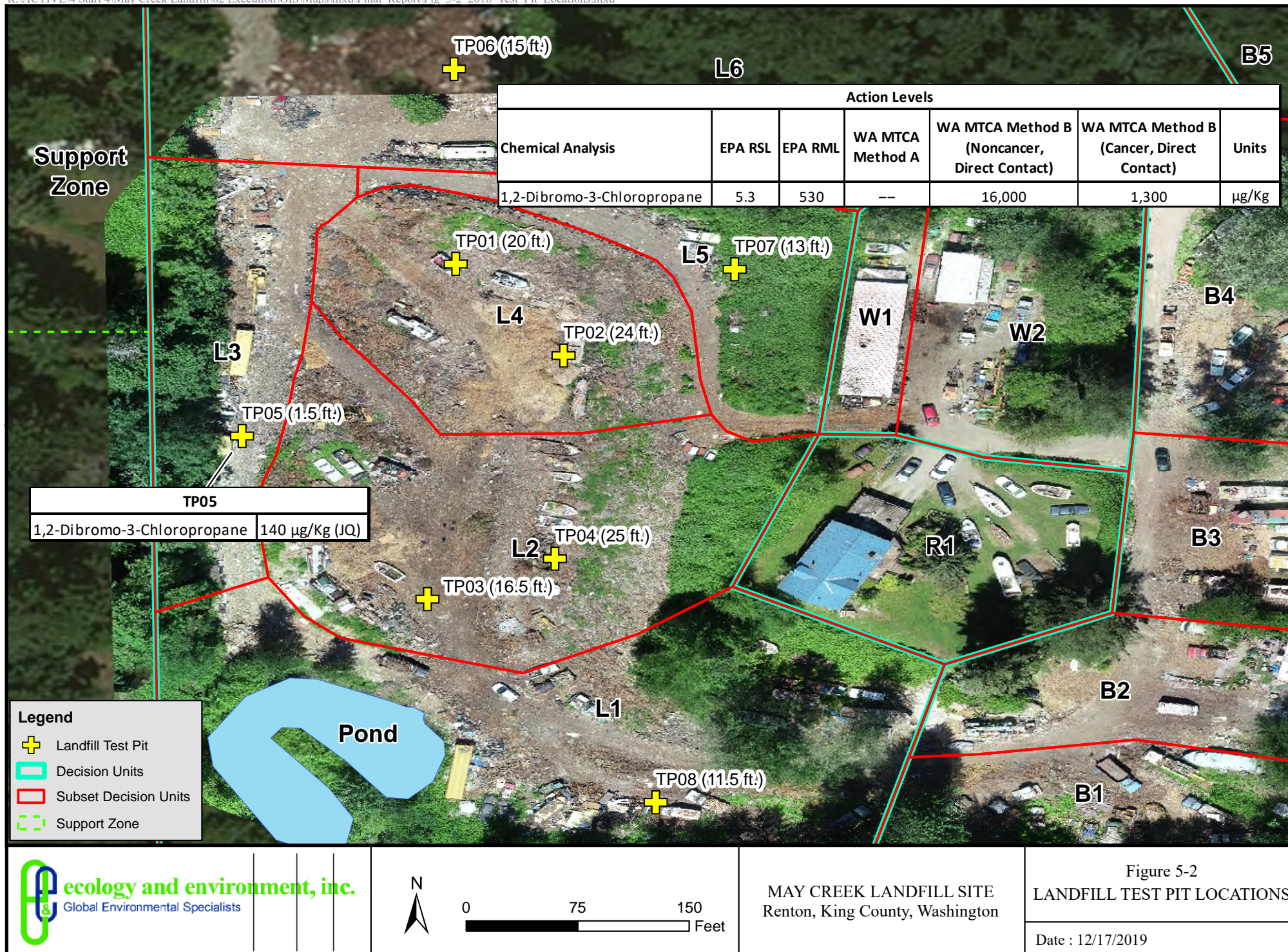
<b>Sample Number</b>	<b>Location</b>	<b>Time</b>	<b>Odor</b>	<b>Color</b>	<b>Temperature (°C)</b>	<b>pH</b>	<b>Dissolved Oxygen (mg/L)</b>	<b>Conductivity (mS/cm)</b>	<b>Turbidity (NTU)</b>	<b>Oxidation-Reduction Potential (mV)</b>
18111401	SW09	9:17	--	Light brown	8.09	7.05	7.24	0.759	7.6	194
18111402	SW08	10:02	--	Light brown	7.57	7.28	7.67	0.776	11.2	191
18111403	SW07	10:40	--	Light brown	7.76	7.14	6.34	0.734	63.6	189
18111404	SW06	11:06	--	Light brown	7.52	7.13	6.93	0.769	8.7	179
18111406	SW05	11:33	--	Light brown	7.94	6.83	3.22	0.754	11.5	183
18111407	SW04	13:12	--	Light brown	7.1	7.24	8.16	0.187	197	77
18111408	SW03	13:25	Hydrogen sulfide	Light brown	6.4	6.83	6.18	0.148	32.2	116
18111409	SW02	13:45	--	Clear	5.26	6.55	3.96	0.154	6.8	154
18111410	SW01	14:40	--	Clear	8.25	6.86	6.31	0.065	101	155
18111411	SW10	14:16	--	Clear	7.69	6.48	6.78	0.178	32	174
18111412	SW11	15:36	--	Light brown	8.72	7.61	4.51	0.787	25.5	183

Key:

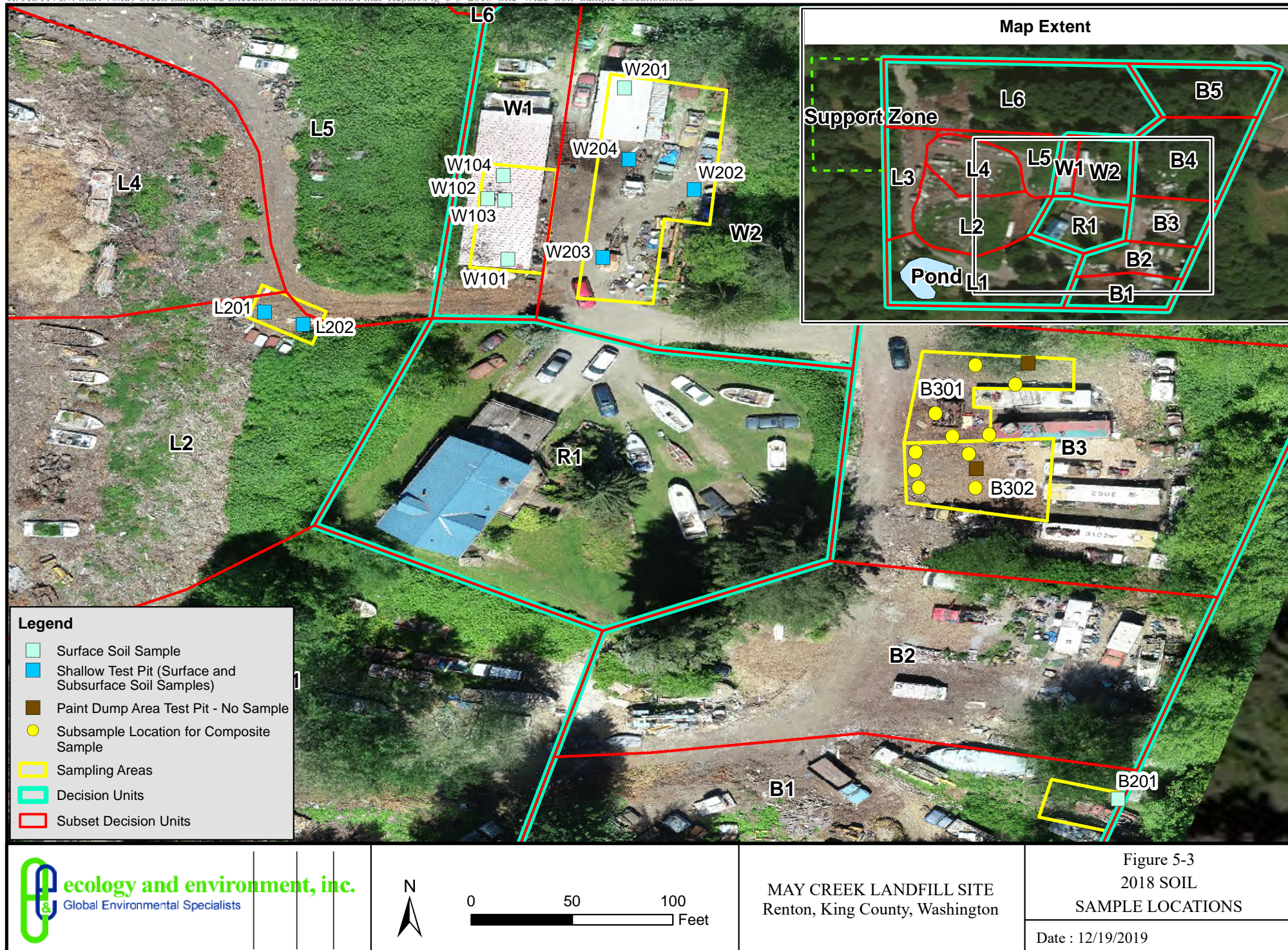
°C      degrees Celsius  
 mg/L    milligrams per liter  
 mS/cm   milliSiemens per centimeter  
 mV      millivolts  
 NTU     Nephelometric turbidity units



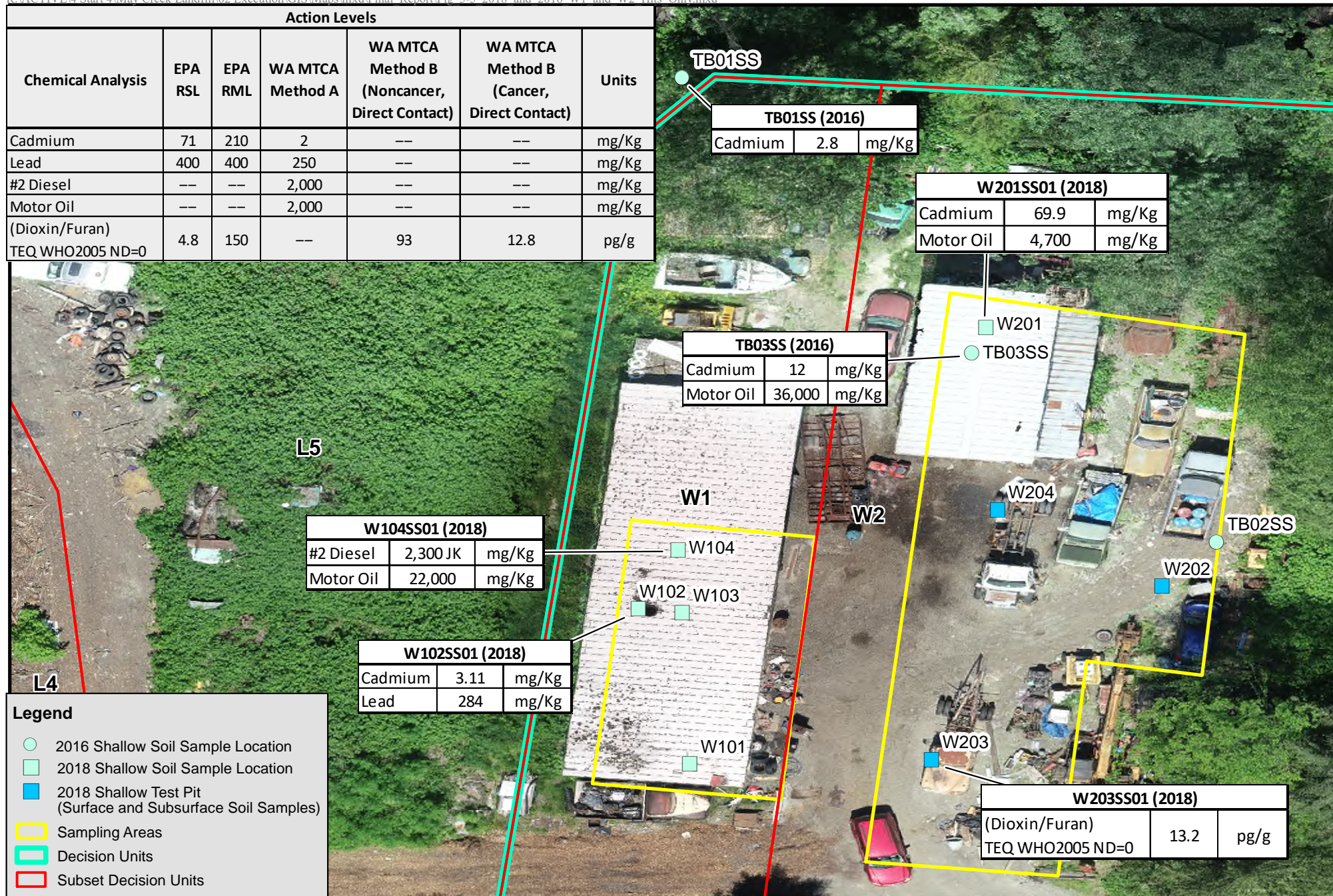




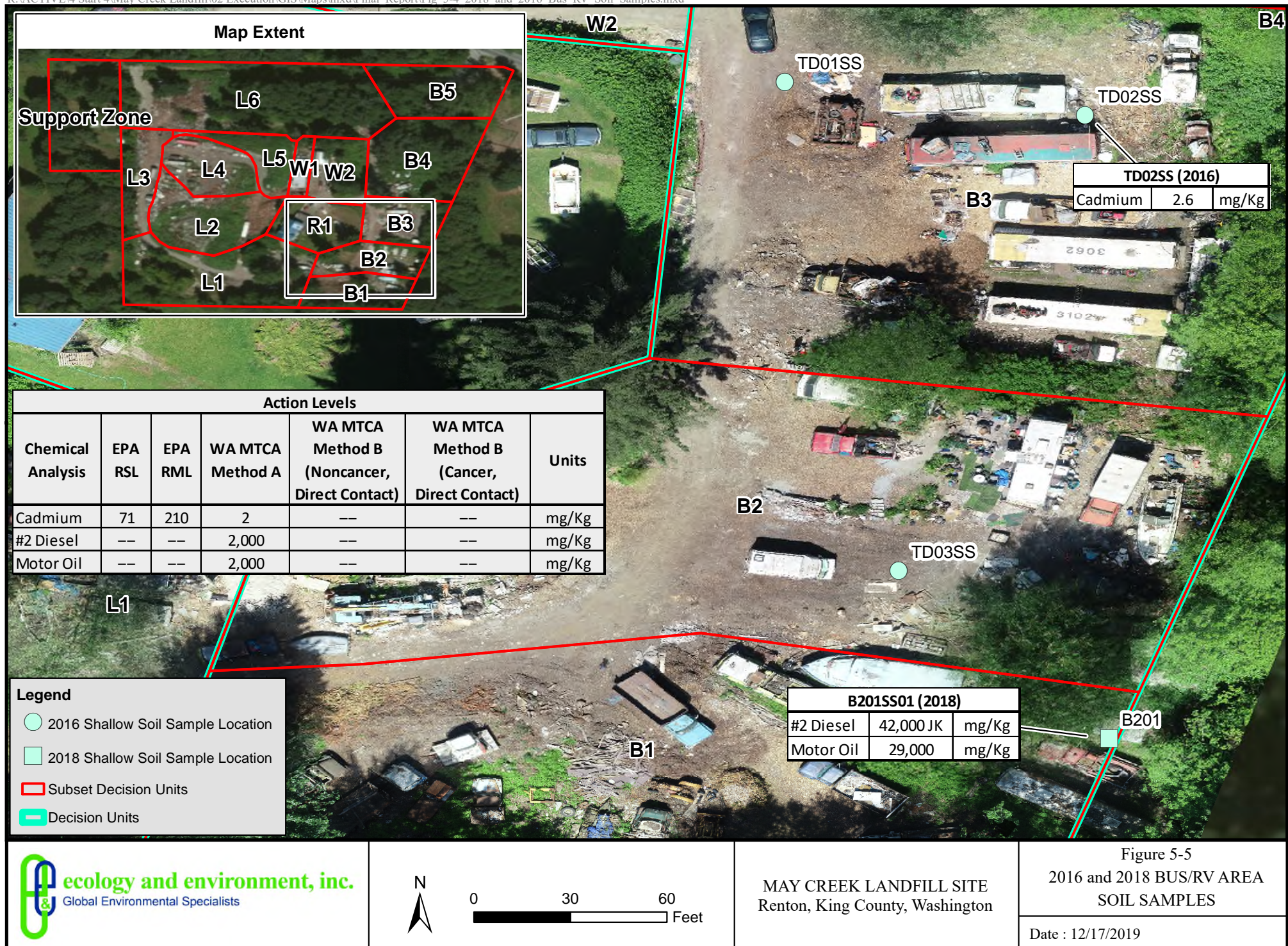




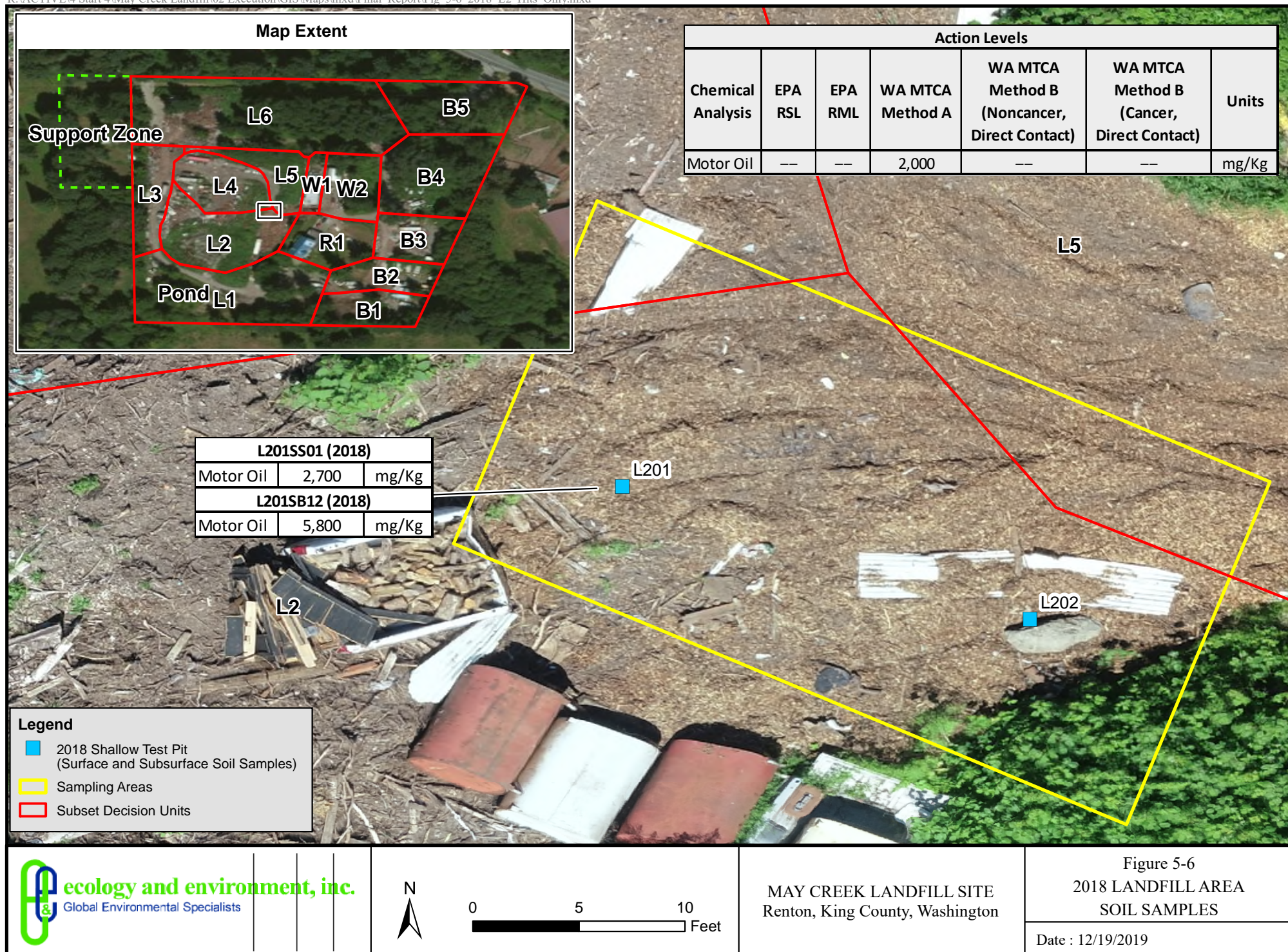




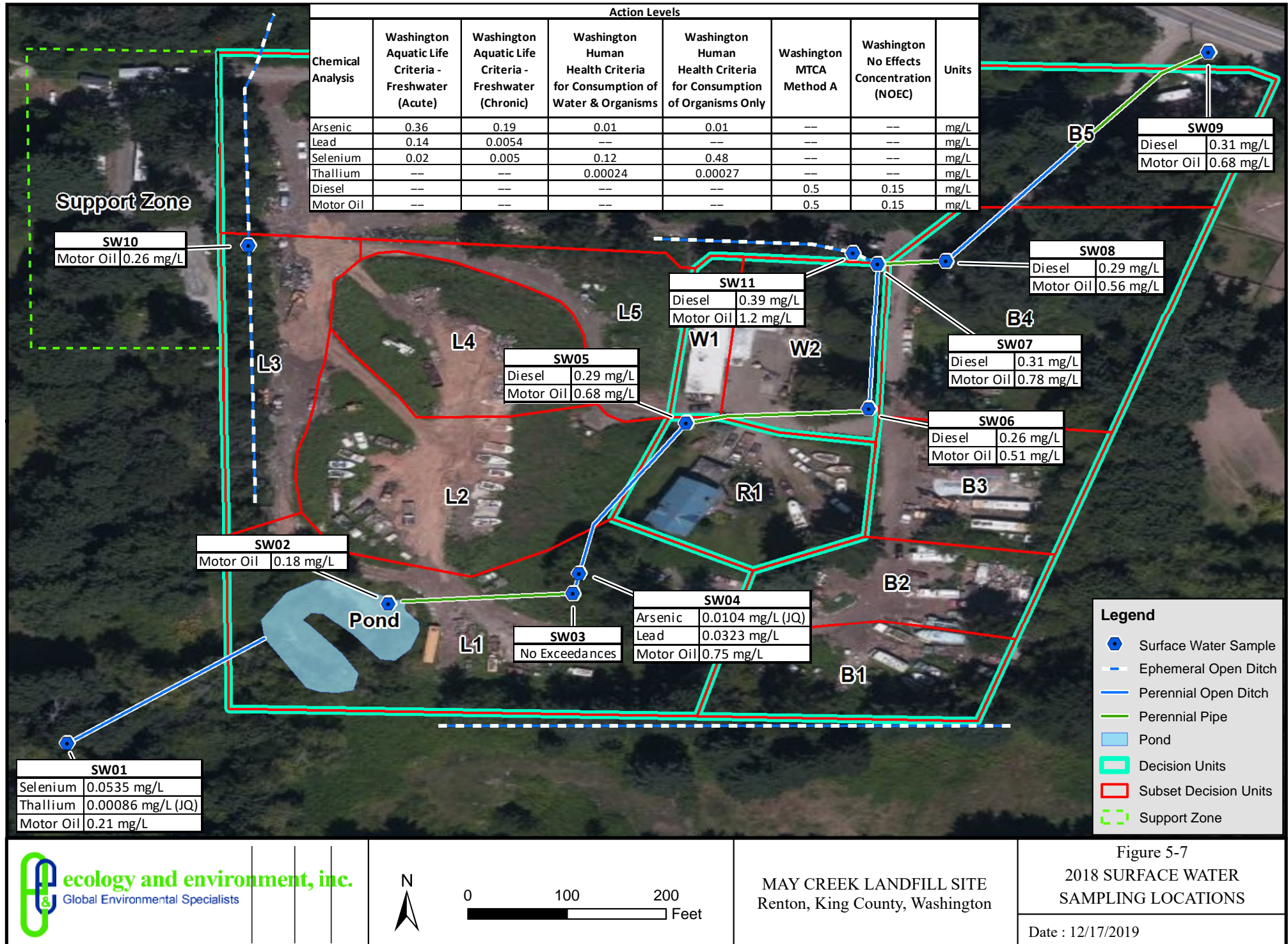














*Map Acronym Key*

Acronym	Description
EPA	Environmental Protection Agency
J	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
K	The bias of the sample is not known
mg/kg	Milligrams per Kilogram
mg/L	Milligrams per Liter
MTCA	Model Toxic Control Act
pg/g	Picograms per Gram
Q	Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit
RML	Removal Management Level
RSL	Regional Screening Level
TEQ	Toxic Equivalency
ug/kg	Micrograms per Kilogram
WA	Washington
WHO	World Health Organization

*Note:*

*Arsenic and thallium have been omitted from some figures, as they are likely present as naturally occurring compounds.*

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## 6 Summer 2019 Removal Activities

As described in Section 5, EPA temporarily stopped removal activities in December 2018 and demobilized from the site. In early 2019, EPA received and evaluated the laboratory results from sampling activities conducted in Fall 2018. The results indicated that surface soil at several discrete locations in the Workshop, Bus/RV, and Landfill DUs exceeded screening levels. Based on this data and data from January 2016, EPA returned to the site in Summer 2019 to excavate and dispose of the contaminated soil. Additionally, EPA completed other removal activities (e.g., borehole drilling and monitoring well installation) that were not completed in Fall 2018.

The Summer 2019 field work was performed from July 8 through August 8, 2019. The site layout was generally the same as in 2018. EPA again used the neighboring property for the Command Post and Support Zone. Powerline Road was used by EPA and its contractors to access the Command Post area, which had a working gate separating the May Creek Landfill property from the Support Zone.

### 6.1 Health and Safety

Similar to the 2018 phase, EPA performed the removal activities using standard H&S procedures and ERRS and START prepared site-specific H&S plans. The OSC led daily H&S meetings with site personnel to discuss daily tasks, risks, and H&S practices.

### 6.2 Excavation and Disposal Activities

#### 6.2.1 General Approach

Based on data collected in 2016 and 2018, EPA identified discrete areas of contaminated surface soil in the Workshop (W1, W2), Bus/RV (B1), and Landfill (L2) Areas. Additionally, while drilling Borehole BH-D (MW-04) in the B3 decision unit during the Summer 2019 removal activities, EPA observed additional visible contamination in surface and shallow subsurface soil. These areas are shown on Figure 5-3, as well as 6-1 through 6-4.

EPA performed the following general approach for soil excavation:

- Based on previous sampling data, distance to other sample locations, and visual observations, EPA and START located and delineated a planned excavation area around each known location of contaminated soil.
- Using equipment (either an excavator or mini-excavator, depending on the location), ERRS excavated an approximate 1-foot lift of the contaminated soil.
- Excavated soil was staged on a polyethylene-lined stockpile in decision unit W2 of the Workshop Area. Prior to constructing the lined stockpile, START collected soil samples from the surface.
- After the first lift of soil at each location was excavated, START collected grab samples from the floor of the excavated area per the procedures and methods in Section 4. The samples were submitted to a nearby, off-site analytical laboratory for rush analyses. The specific analyses performed depended on the previous sampling results for each excavation area (see the following subsections).

- If the results of the samples were below the site action levels, then excavation at that location was completed, and the site was designated for backfill.
- Field analytical (TPH-Dx) with 24-hour turnaround time was used to help provide preliminary data on excavated areas, while waiting for results from the off-site laboratory. A summary of the preliminary results is presented in Table C-13. Note, that final decision about excavation areas were made with the off-site subcontracted laboratory data.
- If the results indicated one or more samples that still exceeded an action level, then the OSC directed ERRS to excavate another 6- to 12-inch lift of contaminated soil, after which START collected additional soil samples for rush analyses.
- This process continued until the sample results indicated that the excavated area was below action levels for the contaminants of concern, or the OSC determined that excavation could stop. For some of the excavation areas (as described below), the OSC stopped excavation after several rounds, even though some of the post-excavation samples still exceeded an action level. This was generally because of safety reasons and/or because a sufficient amount of contamination near the surface had been removed.
- Once excavation was completed at each location, ERRS backfilled the area by placing and compacting gravel in the excavated area to the original surface elevation.
- ERRS loaded the contaminated material into trucks from the waste disposal subcontractor, who transported the waste off site to an appropriate landfill.

The site excavation areas are displayed in Figure 6-1 (Workshop Areas W1 and W2), Figure 6-2 (B1), Figure 6-3 (B-3), and Figure 6-4 (L2). Areas of known contamination that remain at B3 and L2 are displayed in Figures 6-5 and 6-6, respectively. Specific details for each excavation area are provided below.

### **6.2.2 W1**

The W1 excavation area was selected after two samples collected in 2018 had results exceeding Washington MTCA Method A cleanup levels for diesel, motor oil, cadmium, and lead (Figure 5-4, Table B-4). This excavation area was located fully within the central portion of the Workshop in decision unit W1 (Figure 6-1). The Workshop Area itself contained various car parts and engines, several 55-gallon drums of fluid with labels for motor oil, empty gas cans, various containers, tools, and other miscellaneous equipment (Appendix A, Photographs). Prior to excavation, this property was moved in coordination with the property owner to another location. Once the location was clear of property, ERRS used an excavator to remove soil from a rectangle-shaped area that measured 18.5 feet by 10.5 feet, to a depth of approximately 1 foot.

After excavation, START collected soil samples from the newly exposed surface in eight locations, evenly spaced across the exposed area, for the analytes that exceeded action levels from sampling in 2018 (Figure 6-1). None of these samples had results exceeding action levels (Table C-2), so no further excavation was necessary. ERRS then backfilled the excavation area by placing  $\frac{3}{4}$  inch-minus gravel into the excavation area and compacted it with a vibratory plate compactor.

### 6.2.3 W2

DU W2 ultimately had three separate removal areas (Figure 6-1). Two of these were of known contamination from the 2016 and 2018 sampling events, and one was performed to remove soil under the area used for the polyethylene sheeting-lined stockpile of excavated material.

The northernmost excavation area in W2 was directly within the north half of the only workshop in the decision unit. This area was chosen for excavation after two samples collected in 2016 and 2018 exceeded Washington MTCA Method A cleanup levels for motor oil and cadmium (Figure 5-4, Table B-4). Like the W1 workshop, the W2 workshop contained vehicles, tools, equipment and some small containers of liquids (e.g., motor oil and other products used by the property owner). Notably, the shop housed a vehicle ramp made from heavy steel beams that was moved in coordination with the property owner. Once the area was cleared, ERRS used an excavator to remove soil from a rectangle-shaped area within the north end of the workshop to a depth of approximately 1 foot.

After excavation, START collected five samples from the newly exposed surface, four on each side and one in the center. Field analytical results indicated that two of these samples were above action levels for motor oil and diesel (Table C-13), so ERRS performed a second excavation removing an additional 6 inches to 1 foot of soil in depth, as well as expanded the excavation area several feet to the north. This rectangular area was 14.5 feet on the east and west sides, by 11 feet and 12.5 feet on the north and south sides, respectively. Soil was removed to a total depth of 16 to 22 inches (Figure 6-1). After the second excavation, START collected an additional five samples in approximately the same locations as the first five. None of these samples had results exceeding action levels (Table C-3), so no further excavation was necessary. ERRS then backfilled the excavation area with  $\frac{3}{4}$  inch-minus gravel and compacted it with a vibratory plate compactor.

The southernmost excavation area in W2 was in the southeast section of the workshop driveway. This area was chosen for excavation after a sample collected in 2018 exceeded Washington MTCA B cleanup levels for dioxins (Figure 5-4, Table B-4). At this location, ERRS used an excavator to remove soil from a rectangle-shaped area that measured 11 feet by 10 feet, to a depth of approximately 1 foot.

After excavation START collected a single composite sample consisting of five subsample locations from the newly exposed surface, one from each side and one from the center. This sample did not have results exceeding action levels (Table C-5), so no further excavation was necessary. ERRS then backfilled the excavation area with  $\frac{3}{4}$  inch-minus gravel and compacted it with a vibratory plate compactor.

The final excavation in W2 occurred in the northern section of the workshop driveway where excavated soil from affected DUs was placed in a temporary stockpile on top of protective polyethylene sheeting. Prior to being used as a stockpile area, this location was sampled in four locations for a broad suite of analytes including petroleum hydrocarbons, metals, PCBs, pesticides, SVOCs, VOCs; and in one location for dioxins and furans. The results from this

sampling indicated exceedances of diesel, motor oil, gasoline, one PCB Aroclor, several SVOCs, and dioxins compared to action levels (Table C-4).

After the stockpiled soil was transported off site for disposal (Section 7) and the polyethylene sheeting that was used to separate excavated soil from the ground was removed, ERRS excavated the area that was underneath the stockpile to remove soil from a rectangle shaped area that measured 30 feet and 33 feet on the west and east sides respectively, and 16 feet on the north and south sides. Soil was removed to a total depth of 5 to 11 inches (Figure 6-1).

After excavation, START collected two samples from the newly exposed surface, including one from the north-center of the excavation and one from the south-center. These were analyzed for all analytes as the first samples for this area, except for dioxin/furans. The results for these two samples were below actions levels (Table C-4). ERRS then backfilled the excavation area with  $\frac{3}{4}$  inch-minus gravel and compacted it with a vibratory plate compactor. All known contamination within the W1 and W2 DUs was removed and taken off site for disposal.

#### **6.2.4 B1**

The B1 excavation area was selected after one sample collected in 2018 had results exceeding Washington MTCA Method A cleanup levels for diesel and motor oil (Figure 5-5, Table B-5). This location also had visible evidence of oil contamination, likely from a flat-bed truck parked there with several 55-gallon drums, which were leaking oil to the bed of the truck and the ground surface below. EPA had previously documented the presence of the leaking drums of oil on this truck and the oil-impacted soil below. The drums of oil had been removed by the property owner prior to Summer 2019, but the truck and oil-impacted soil remained. As confirmation, an additional soil sample was collected at this location prior to excavation for field analytical testing. The results significantly exceeded action levels (Table C-13).

This excavation area was located at the far east end of the B1 decision unit, where several vehicles were parked, including the flatbed truck that previously had the leaky drums. The ground at this area sloped down towards the property boundary, and a small retaining wall blocked the vehicles and prevented them from being moved. ERRS removed the retaining wall and graded the slope with an excavator, and then moved the vehicles away from the planned excavation area with a chain and excavator. Once the area was cleared, ERRS used the excavator to remove soil from to a depth of approximately 1 foot.

After excavation, START collected five samples from the newly exposed surface, four on each side and one in the center. Field analytical results indicated that four of these samples contained motor oil and one sample contained diesel at concentrations exceeding Washington MTCA Method A cleanup levels (Table C-13).

Due to this information, ERRS performed a second excavation removing an additional 1 to 2 feet of soil in depth, as well as expanding the excavation area several feet to the west. This final complex rectangular area was roughly 13.5 by 21.5 feet on the west and east side, respectively, by 15 and 17 feet on the north and south sides, respectively. Soil was removed to a total depth of 3 to 28 inches (Figure 6-2). After the second excavation, START collected an additional four samples in approximately the same locations as four of the first five samples, excluding the area

around the eastern sample, which had no action level exceedances and where no further excavation was performed. None of the second-round samples had results exceeding action levels (Table C-7), so no further excavation was necessary. ERRS then backfilled the excavation area with  $\frac{3}{4}$  inch-minus gravel and compacted it with the bucket of an excavator.

### **6.2.5 B3**

During the 2016 sampling event, one of two soil samples collected within the B3 decision unit exceeded Washington MTCA Method A cleanup levels for cadmium (E & E 2016). In 2018, EPA observed an area of B3 covered with wood chips, into which the property owner reported dumping the contents of latex paint cans and mixing the paint with the wood chips. During Fall 2018, START collected two composite samples of wood chips from the reported paint disposal area, for waste disposal profiling (Figure 5-3, Table B-8). These B3 samples collected in 2018 did not exceed any action levels for RCRA metals or BTEX compounds.

EPA selected the location of monitoring well MW-04 (borehole BH-D) in the B3 decision unit based on several factors such as accessibility, elevation, assumed hydrology, and position relative to other monitoring wells (Section 6.3). While drilling the borehole, START observed visibly contaminated soil at a depth of 0 to 2 feet. FID measurements of the boring reached 1,020 parts per million (ppm) with an average of 50 ppm. From 2.5 to 4.5 feet the FID readings reached 150 ppm with an average of 20 ppm (Appendix G). The following day after well installation, a dark colored liquid with a strong petroleum/chemical smell had accumulated around the well casing on the surface of the hydrated bentonite chips. FID measurements of the inner well casing averaged 300 ppm, and water bailed from the well had a measurement of 100 ppm directly over the surface of the liquid. After this finding, START collected additional soil samples from the north B3 area (B31901SB01 through B31906SB23) and analyzed them for diesel and motor oil. Several of these samples indicated concentrations exceeding Washington MTCA Method A cleanup levels for diesel and/or motor oil (Table C-8 and Table C-13).

Based on these findings, EPA excavated the contaminated soil in the northern B3 area surrounding MW-04. This initial excavation was bounded by two immobile city buses on the north and south sides, an active driveway on the west side, and several vehicles that were parked on top of the fill material to the northeast (Figure 6-3). Excavation continued down to a preexisting asphalt layer that was presumably once used as a driveway or parking area. The fill material in this area was layered in a predictable manner; the approximate top foot was composed of wood chips, atop a thin layer of asphalt roofing shingles, atop soil fill material, sitting atop the asphalt layer. This asphalt layer seemingly served as a confining layer to liquids migrating downward, which may have been a partial cause for their discovery during the drilling of MW-04. The final excavation area of the northern side of B3 was approximately 84 feet on the north and south sides by 15.5 feet on the west and east sides, with a triangular notch unexcavated from the northeast corner due to parked vehicles left in place. The depth of excavation ranged from 1 to 32 inches.

After the final excavation of the northern B3 area, START collected seven additional samples from six locations on the surface of the newly excavated material in the western portion of the excavation area. Five samples exceeded action levels for motor oil, one sample for total PCBs, three samples for benzo[a]pyrene, and one sample for benzo[b]fluoranthene (Tables C-8 to C-11,

Figure 6-5). This western area was not excavated due to the proximity of an active driveway and underground electrical lines, thus leaving known contaminated soil in place.

The B3 DU was bifurcated by city buses as well as a large immobile excavator. This excavator-bus demarcation largely defines the “south” from “north” B3 area (Figure 6-3). The excavator was too large and heavy to move without disassembly, so the excavation of contaminated soil was performed around it, and an area of likely contaminated material was left between these south and north excavation areas, generally beneath the excavator.

The southern section of B3 became a location of interest after samples collected to define the northern area of contamination revealed further contamination southward. The results for samples B31910SB12 – B31912SB12, collected from the southern portion of B3 on July 17, 2019, indicated that all locations exceeded action levels for motor oil, one for gasoline, one for PCBs, and two for benzo[*a*]pyrene (Tables C-8 to C-11). This finding of contamination beyond action levels in the southern portion of B3 prompted EPA to continue sampling southward. Five additional samples were collected on July 25 in the southern portion of B3 (samples B31914SB23 – B31918SB23); of these, two exceeded action levels for motor oil, and two exceeded action limits for PCBs (Tables C-8 to C-9, Figure 6-3). Based on these results, EPA continued excavation into the southern portion of B3. The final extent of this second rectangular excavation area was approximately 38 feet on the north, 32 feet on the south, 14.5 feet on the west, and 13.5 feet on the east sides. The final depth of soil removed was 4 to 32 inches.

This southern B3 area of excavation was bounded by two city buses to the east, an active driveway to the west, an excavator to the north, and a buried electrical line and hillside supporting RVs being used as homes to the south. Because of these physical barriers, six sample locations in the southern B3 area with known soil contamination were left in place (Figure 6-5). Five of these have known motor oil contamination, one has benzo[*a*]pyrene, and another one has PCBs.

Waste soil that had been excavated and temporarily placed within the B3 area stockpile was sampled from two locations for waste disposal profiling. These two samples were analyzed for petroleum hydrocarbons, metals, PCBs, pesticides, SVOCs, VOCs, and ignitability. These samples were also processed and analyzed for TCLP analysis. One of the samples exceeded Washington MTCA Method A cleanup levels for gasoline (Tables C-12A and C-12B).

After the contaminated soil in B3 was excavated to the extent practicable, ERRS began to backfill the area. Because the excavation in this area uncovered an asphalt layer that was likely a former driveway or parking area, EPA did not return the entire B3 excavation area to the pre-removal grade. Rather, ERRS backfilled the western edges of the northern and southern excavation areas by placing and compacting ¾ inch-minus gravel to create graded ramps down from the driveway onto the newly exposed asphalt.

#### **6.2.6 L2**

The L2 excavation area was selected after one sample location from 2018 had results exceeding Washington MTCA Method A cleanup levels for motor oil (Figure 5-6, Table B-5). This location also had visible and olfactory evidence of oil contamination and was located directly upgradient



of the surface water drainage pathway created by the property owner. A possible source of this contamination was three empty oil tanks, each approximately 300 to 500 gallons in size, lying on the ground in the landfill directly uphill from this location. To allow access for excavation activities, ERRS pushed these tanks and the bed of a pickup truck several feet south. Once the location was cleared, ERRS used an excavator to remove soil from a trapezoid-shaped area that measured 20 feet on the north, 19 feet on the south, 11 feet on the west, and 13 feet on the east sides, to a depth between approximately 1 and 2 feet.

After excavation, START collected four soil samples (L21901SB12 – L21904SB12) that were evenly distributed across the newly exposed removal excavation area and submitted them for diesel and motor oil analyses (Figure 6-4). Field analytical and laboratory results indicated that all four of these samples contained motor oil at concentrations exceeding Washington MTCA Method A cleanup levels (Tables C-6 and C-13). Based on these results, ERRS excavated a second time, extending the excavation area by several feet to the south and west towards the main Landfill Area. ERRS and START repeated this process of excavation and sampling several more times, until a total of four excavations had occurred, with many of the post-excavation samples containing concentrations of motor oil exceeding Washington MTCA Method A cleanup levels (Table C-6). After the fourth excavation, START collected four final samples (L21912SB23 – L21913SB56) along the west and south walls of the excavation, adjacent to the upfill portion of the main Landfill Area. One of these samples along the south wall, collected at a depth of 2 to 3 feet, exceeded the MTCA Method A cleanup level for motor oil (Figure 6-6). However, due to concerns of slope stability within the excavation area, worker safety, and proximity to existing infrastructure, EPA decided to stop further excavation attempts of this contaminated soil, thus leaving known contaminated soil in place.

The final excavated trapezoidal area was roughly 9.5 by 17.5 feet on the west and east side, respectively, by 30 and 29 feet on the north and south sides, respectively. Soil was removed to a total depth of 16 inches at the northeast corner and 51 inches at the southwest corner (Figure 6-4). ERRS backfilled the excavation area by placing  $\frac{3}{4}$  inch-minus gravel into the excavation area and compacted it with a vibratory plate compactor.

### **6.2.7 Unexploded Ordnance**

On July 8, 2019, EPA observed an object that appeared to be a mortar round on the ground at the B3 decision unit and ERRS staff marked the area around the object with marking paint. The following day, the OSC called King County's Sheriff Office and their Hazardous Devices and Materials Team arrived on site shortly after to assess the object. However, the object had been removed by unknown person(s). EPA site removal staff and the Sheriff's team searched for the object and interviewed tenants, but it was never found.

The property owner informed the Sheriff's team of a potential unexploded ordnance of which he was aware. The property owner led the team to the L4 decision unit, on the top of the main landfill pile, where the Sheriff's team discovered an object that appeared to be a pipe bomb. In situ testing of the device confirmed that it contained explosive materials, and the Sheriff's team disabled and removed the device shortly after discovery.

### **6.3 Drilling and Monitoring Well Installation**

To further assess impacts on the subsurface from site activities, START installed soil boreholes across the site and completed them as monitoring wells. Between July 9 and 13, 2019, a total of seven boreholes (boreholes BH-A through BH-G) were drilled by Holt Service Inc., a state of Washington-licensed driller under subcontract to START. The driller used a hollow-stem auger drilling rig and split spoon samplers to collect minimally disturbed, semi-continuous soil core samples. Boreholes were advanced in the Support Zone, Landfill Area, Bus/RV area, and the Workshop Area of the site. ERRS assisted the investigation by removing landfill debris and clearing the ground surface at each borehole/monitoring well location.

One boring (BH-A) was advanced west of the Landfill Area, within the Support Zone. Boreholes BH-B, BH-D, BH-E, and BH-F were all advanced within the Bus/RV area. Specifically, BH-B was installed near the center of DU B1, located in the southeast corner of the site; BH-D was installed in the eastern portion of DU B3 near the eastern site boundary; BH-E was installed in the southern portions of DU B5; and BH-F was installed in the southern section of DU B4. Borehole BH-C was installed near the center of DU L1, at the southeast corner of the Landfill Area; this boring was placed approximately 100 feet east of the pond located in the southwest corner of this DU. Lastly, BH-G was installed near the center of the Workshop Area (DU W2). Figure 6-7 presents the locations of these borings.

The locations of each borehole were selected to provide broad areal coverage of the site, as well as allowing for the installation of monitoring wells that could be used to characterize groundwater conditions at locations expected to be hydraulically upgradient (BH-A) and downgradient (BH-E and/or BH-F) of the site. Within each DU, the specific borehole locations were determined as directed by the OSC based on field conditions including the presence of vehicles and/or debris and drill rig access.

The boreholes were drilled to total depths ranging from 17 feet bgs (BH-G) to 31 feet bgs (BH-B). In general, the borings drilled in the eastern portion of the site were advanced to at least 21 feet bgs. The total depth for each borehole was based on the depth of groundwater observed at the time of drilling and lithological and stratigraphic conditions. Generally, fill material that included non-native soils, wood debris, glass, plastic, metal, concrete, and asphalt roofing material were encountered in each of the on-site borings (BH-B through BH-G) from the ground surface up to 13 feet bgs. No fill material was encountered in BH-A, which was located outside of the site boundary, within the Support Zone. Initial depth-to-groundwater measurements ranged from 5.59 feet bgs in BH-A to 26.51 feet bgs in BH-B. Groundwater was not initially encountered in BH-G during drilling, but there was a measurable quantity of groundwater in the completed monitoring well (MW-07) the next day after drilling. Detailed geologic borehole logs are provided in Appendix G.

#### **6.3.1 Boreholes and Subsurface Soil Sampling**

Individual soil core segments were recovered via split spoon, driven ahead of the hollow stem auger bit, at 2-foot intervals. The collected material was provided to the START geologist for field geologic/hydrogeologic characterization and sampling for laboratory analyses.

START collected two discrete subsurface samples for laboratory analyses from selected soil core intervals from each borehole. Sample intervals were chosen based on PID/FID field screening results, with intervals exhibiting the highest field screening readings targeted for sampling. Based on the field observations by the START geologist, one additional subsurface soil sample was also collected from BH-D. In total, 15 discrete samples were collected for laboratory analyses of PCBs, pesticides, SVOCs, TAL metals, TPH-Dx, TPH-Gx, and VOCs. Table C-14 provides a summary of these samples. All samples were stored in coolers with ice and were maintained in START's custody until they were shipped to the off-site laboratories.

The results indicated that soil samples from two boreholes (BH-C/MW-02 and BH-D/MW-04) contained compounds that exceeded site screening levels. At BH-C, motor oil was detected above the MTCA Method A cleanup level between 10 and 12 feet bgs; however, there were no exceedances in the same borehole at the 5-to-7-foot bgs interval.

At BH-D/MW-04 in the B-3 DU, gasoline and benzo[a]pyrene were detected above action levels at both the 0-to-2-foot and 2.5-to-4.5-foot bgs intervals. Also, m- and p-xylenes exceeded action levels at the 0-to-2-foot bgs interval, while motor oil exceeded the action level at the 2.5-to-4.5-foot bgs interval. No exceedances were observed in BH-D at the 12.5-to-14.5-foot bgs interval (Table C-14; Figure 6-8). These results for the top few feet of BH-D were related to the significant contamination that was discovered in, and subsequently removed from, the shallow subsurface of the surrounding area of the B3 decision unit during the 2019 field event (refer to Section 6.2.5).

### **6.3.2 Monitoring Well Installation**

Monitoring wells were installed in each of the seven boreholes drilled at the site. Monitoring well MW-01 was installed in BH-A, MW-02 was installed in BH-C, MW-03 was installed in BH-B, MW-04 was installed in BH-D, MW-05 was installed in BH-F, MW-06 was installed in BH-E, and MW-07 was installed in BH-G (Figure 6-7). As mentioned above, monitoring well locations were selected to provide broad areal coverage of the site to allow for evaluation of hydrological gradient(s) and groundwater quality at upgradient and downgradient positions at the site. Table 6-1 presents a summary of the site monitoring wells and includes their locations (latitude/longitude), depths, screened intervals, and surveyed elevations.

Each monitoring well was constructed using 2-inch inner-diameter, Schedule 40 PVC riser with threaded flush-joints and one 10-foot section of 0.010-inch factory-slotted PVC well screen. The sand/filter pack, consisting of 10-20 Colorado silica sand, extended at least 1 foot above the top of the screen. An annular seal, comprised of hydrated bentonite chips and/or bentonite pellets, was placed atop the filter pack and generally extended to approximately 0.5 feet bgs. The remainder of the borehole was filled with concrete. An aboveground well monument was constructed for each monitoring well, consisting of a 2-foot by 2-foot concrete pad, 12-inch steel outer protective casing, and three protective bollards painted with high-visibility yellow paint. Well construction details are included in the borehole logs presented in Appendix G.

Before completing the monitoring well at BH-D/MW-04, EPA consulted with Ecology because of the visibly contaminated soil at the surface (Section 6.3.1). Ecology and EPA agreed that excavation around the well casing was appropriate down to the asphalt layer approximately 3 to

4 feet below the original surface. Care was taken to leave in-place and expose the well's bentonite seal down to the asphalt layer. Once visible, EPA and Ecology concluded that the seal was in fact still intact, properly hydrated, and performing as intended to block downward flow of possible contamination. Leaving the MW-04 well in place was agreed upon by both Ecology and EPA.

After installation, each monitoring well was allowed to rest for at least 24 hours to allow the annular bentonite to cure before developing. Up to four rounds of development were completed at each newly installed monitoring well using a combination of surging and pumping. However, development proved difficult, with all but two wells (MW-01 and MW-05) pumping dry at some point during development process. Attempts were made to stabilize water quality parameters to within 10% over three consecutive readings and reduce turbidity below 10 NTUs; however, the lowest final turbidity readings achieved were 393 and 872 NTUs from MW-03 and MW-05, respectively. Groundwater elevations, after development, ranged from 458.61 feet above sea level in MW-01 to 378.72 feet above sea level in MW-06, suggesting a gradient and presumed flow from southwest to northeast. A Washington State-licensed land surveyor (APS Survey & Mapping) conducted a survey for elevation and location of installed monitoring wells on September 5, 2019. A survey report can be found in Appendix H.

### **6.3.3 Groundwater Sampling**

Following well development, groundwater samples were collected from the newly installed monitoring wells. A total of eight groundwater samples, including one field duplicate for MW-02, were collected. Apart from monitoring well MW-03, a peristaltic pump and dedicated Teflon-lined tubing was utilized for groundwater sample collection. Prior to sample collection, the groundwater depth and depth to bottom was measured at each well. The tubing inlet was then placed generally near the center of the screened interval. Low-flow purging and sample collection techniques were utilized to minimize aquifer disturbance and limit the volume of IDW generated. During the purging process for monitoring wells, water quality parameters (pH, temperature, turbidity, oxidation reduction potential, and conductivity) were monitored (Table 6-2). The purging pump rate was set between 0.1 and 0.5 liters per minute. Due to problems with slow groundwater recovery, as well as the depth to groundwater in monitoring well MW-03 approaching the working limits of a peristaltic pump, a dedicated bailer was utilized for sample collection at this well.

Samples were collected directly into pre-labeled sample containers and preserved as required upon sample collection completion; however, TPH-Gx and VOC sample vials were preserved prior to sample collection. Sample jars were filled such that containers requiring a reduced flow rate (e.g., 40-milliliter vials) from the purge rate were collected last, as to not disturb the well by increasing and/or decreasing the flow rate during sample collection, potentially increasing turbidity in the well. Sample preservation was verified with litmus paper. Samples were collected for laboratory analyses of PCBs, pesticides, SVOCs, TAL metals, TPH-Dx, TPH-Gx, and VOCs. All samples were stored in coolers with ice and were maintained in START's custody until they were hand-delivered to the off-site laboratory.

All the monitoring wells had at least one screening level exceedance (Table C-15; Figure 6-9). MW-02 and MW-06 had exceedances of motor oil, while MW-07 had exceedances of motor oil

and diesel. Several metals were detected above screening levels in the groundwater samples. Arsenic was detected above screening levels in all wells. Cobalt was detected above screening levels in MW-05 and MW-07; iron in MW-02 and MW-05; and manganese in MW-02, MW-03, MW-05, MW-06, and MW-07. Several SVOC compounds were detected above screening levels in groundwater as well: 2,6-dinitrotoluene in MW-03, MW-04, and MW-07; bis(2-ethylhexyl) phthalate in MW-05 and MW-06; and hexachlorobenzene, hexachlorobutadiene, and hexachloroethane in MW-03. The only exceedance in MW-01 on the neighboring property was arsenic, which was detected at similar concentrations in the groundwater samples from all the monitoring wells. All other TPH, metal, and SVOC compounds that were detected above screening levels were found in groundwater samples from the May Creek Landfill property itself (monitoring wells MW-02 through MW-07).

## **6.4 Investigative-Derived Waste**

IDW consisted of soil cuttings from the seven boreholes, drilling equipment decontamination water, development water from the seven monitoring wells, sampling supplies, and PPE. All soil cuttings were collected and managed by ERRS and disposed of with other excavated soil from the site. Drilling equipment decontamination water and well development water was also collected and consolidated in 275-gallon intermediate bulk containers and taken off site for disposal by ERRS. Used sampling supplies and PPE were disposed of off site as solid waste.

## **6.5 Site Restoration and Demobilization**

Following the completion of removal activities and the off-site transport of site waste, EPA and its contractors restored the site to pre-removal conditions. This included backfilling excavated areas with  $\frac{3}{4}$  inch-minus gravel and compacting it; ensuring all IDW, PPE, or other waste created by EPA was removed properly; repairing and grading the unimproved roads used during site operations, and in some cases, applying  $\frac{3}{4}$  inch-minus gravel to road surfaces; locking all monitoring wells and gates; and removing work trailers and heavy equipment from the site. All locations affected by EPA site activities were returned to a status that was deemed both satisfactory and safe for day-to-day use by the property owners and the OSC. Following these restoration activities, the OSC toured the site with the property owner to confirm that they were satisfied with the condition of the property.

<b>Table 6-1 Monitoring Well Summary</b>							
<b>Monitoring Well ID</b>	<b>Borehole ID</b>	<b>Latitude</b>	<b>Longitude</b>	<b>Measured Well Depth (ft BTOIC)</b>	<b>Screened Interval (ft bgs)</b>	<b>Surveyed Well Elevation TOIC<sup>1</sup></b>	<b>Surveyed Ground Surface Elevation<sup>1</sup></b>
MW-01	BH-A	47.50194472	-122.1327708	20.12	7 - 17	468.08	465.81
MW-02	BH-C	47.50098722	-122.1318725	20.4	7 - 17	469.92	467.27
MW-03	BH-B	47.50098306	-122.1309667	31.5	18 - 28	457.00	454.36
MW-04	BH-D	47.50144667	-122.1305925	23.28	10 - 20	437.87	435.68
MW-05	BH-F	47.50174528	-122.1306881	23.17	10 - 20	434.20	431.39
MW-06	BH-E	47.50223611	-122.1303089	26.71	13.75 - 23.75	398.23	395.34
MW-07	BH-G	47.50185611	-122.1311367	19.21	6 - 16	446.14	443.56

Notes:

- <sup>1</sup> - North American Vertical Datum 1988 Elevation in Feet
- All borings drilled Holt Services utilizing a Mobile B58 hollow stem auger with a 6-inch auger bit.
- All monitoring wells constructed with 2.0-inch PVC casing, 10-foot 0.010-inch slotted screen, and 1 foot sump.
- For all monitoring wells, the surface seal consists of bentonite chips and/or bentonite pellets. The filter pack consists of 12-10 CSS.

Key:

bgs = Below Ground Surface  
 BTOIC = Below Top of Inner Casing  
 ft = Feet  
 ID = Identification  
 PVC = Polyvinyl chloride  
 TOIC = Top of Inner Casing  
 CSS = Colorado Silica Sand

<b>Table 6-2 Monitoring Well Water Quality</b>										
<b>Sample Number</b>	<b>Location</b>	<b>Odor</b>	<b>Color</b>	<b>Temperature (°C)</b>	<b>pH</b>	<b>Dissolved Oxygen (mg/L)</b>	<b>Conductivity (mS/cm)</b>	<b>Turbidity (NTU)</b>	<b>Oxidation-Reduction Potential (mV)</b>	<b>Water Level (ft BTOIC)</b>
19070401	MW-01	None	Clear	13.19	5.73	5.66	0.13	0.3	429	9.47
19070402	MW-02	--	Clear	16.24	6.34	1.14	0.639	7.4	-10	6.00
19070407	MW-03	None	Clear	21.82	6.97	3.1	0.607	2.8	313	27.81
19070404	MW-04	None	Clear	15.18	5.76	1.7	0.44	1	311	17.88
19070405	MW-05	None	Clear	16.57	6.07	1.31	0.517	3.3	-20	18.42
19070406	MW-06	None	Clear	15.66	6.48	5.07	0.702	2.2	368	19.51
19070408	MW-07	None	Clear	17.34	6.4	2.1	1.19	0	294	16.37

Note: Final water quality parameters and depths recorded during groundwater sampling from July 23–24, 2019.

Key:

°C degrees Celsius

BTOIC below top of inside casing

ft feet

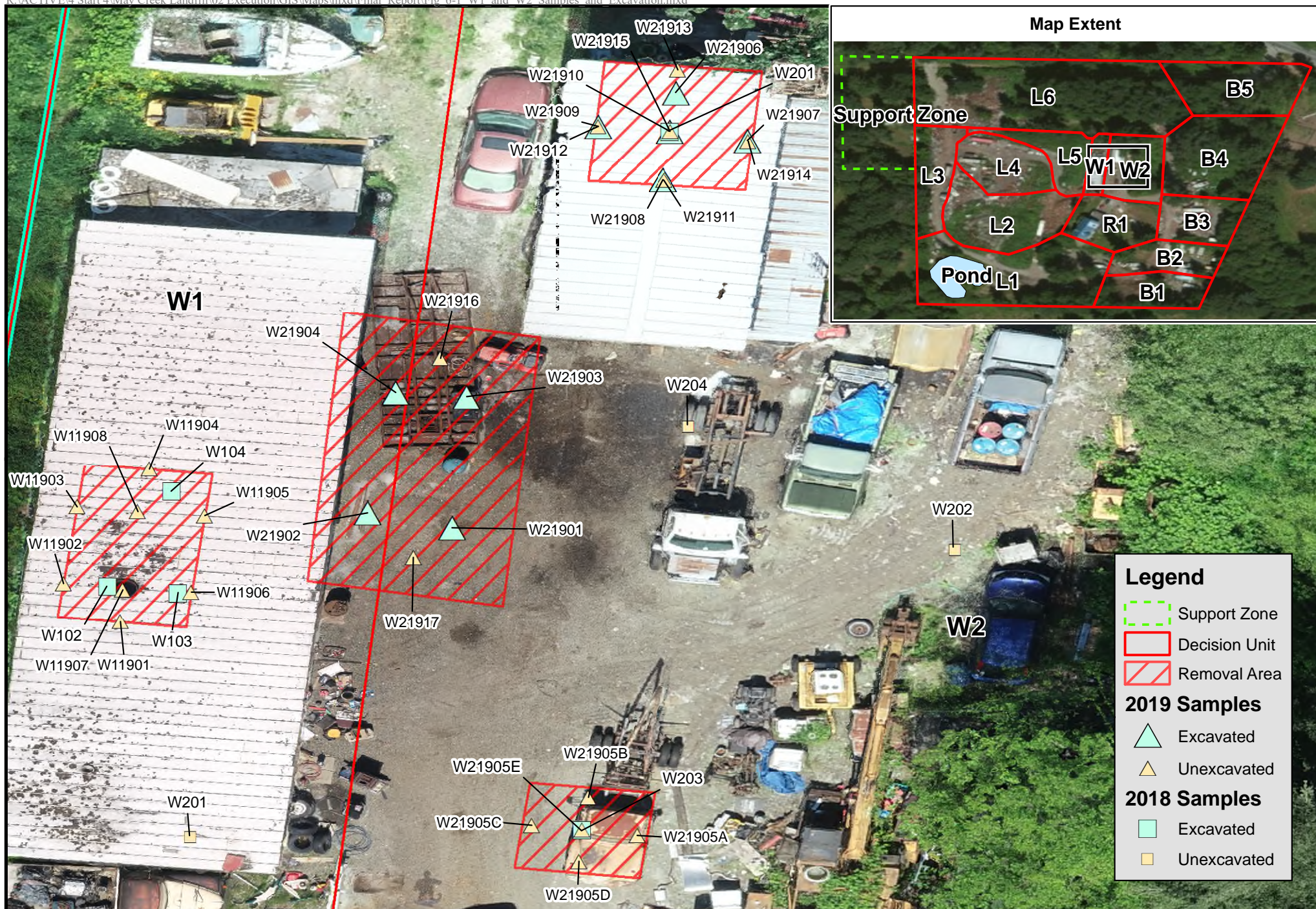
mg/L milligrams per liter

mS/cm millisiemens per centimeter

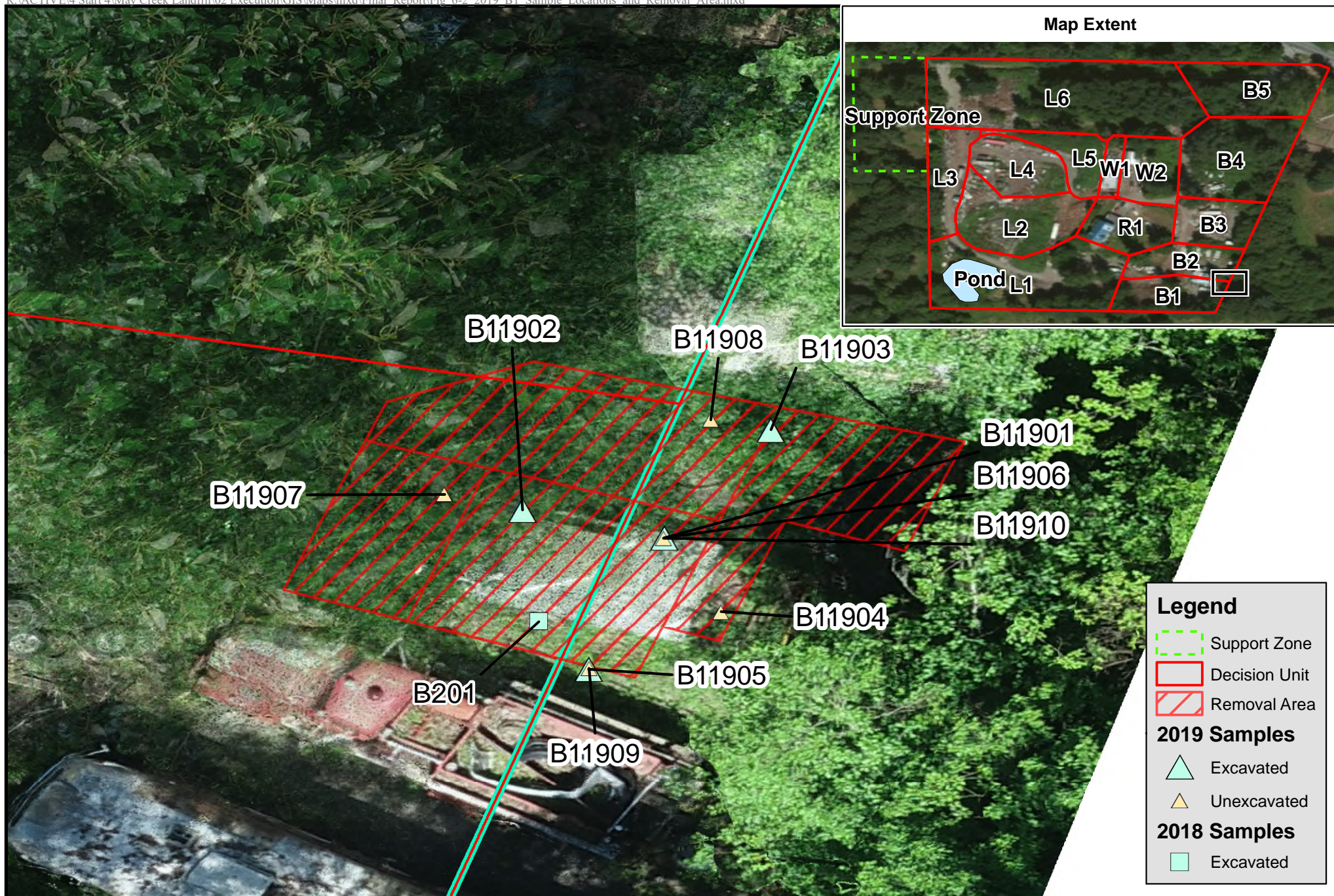
mV millivolts

NTU Nephelometric turbidity unit









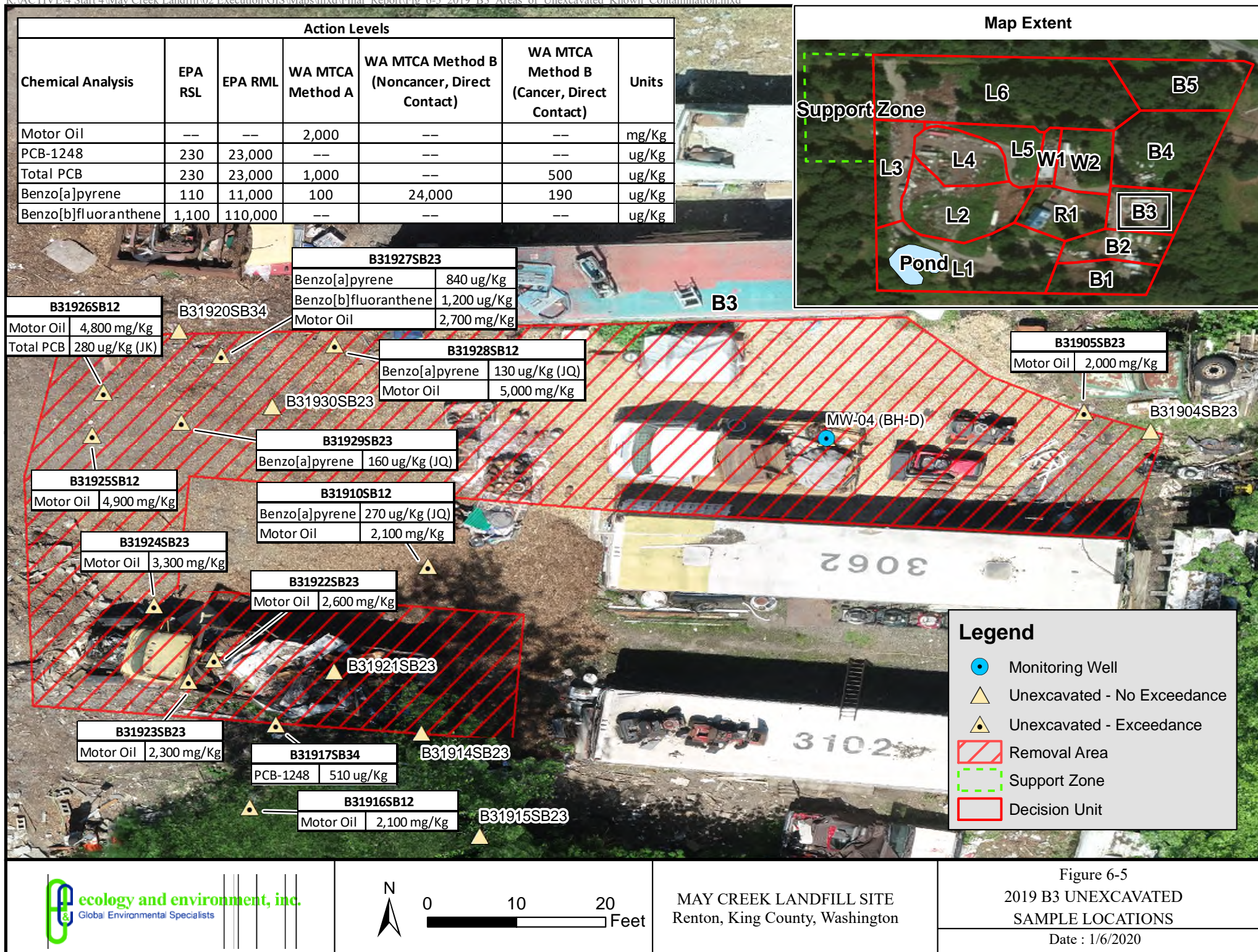




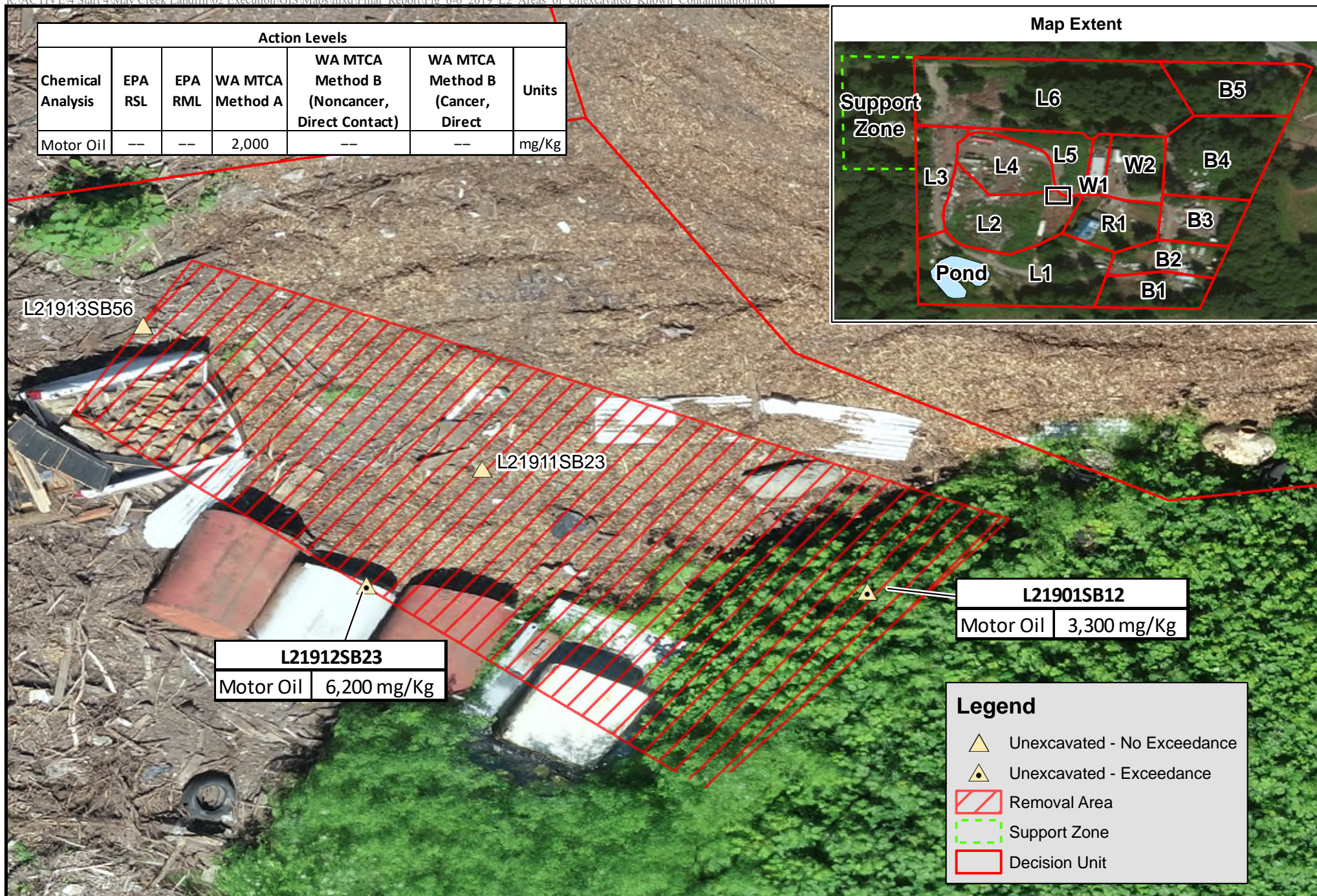




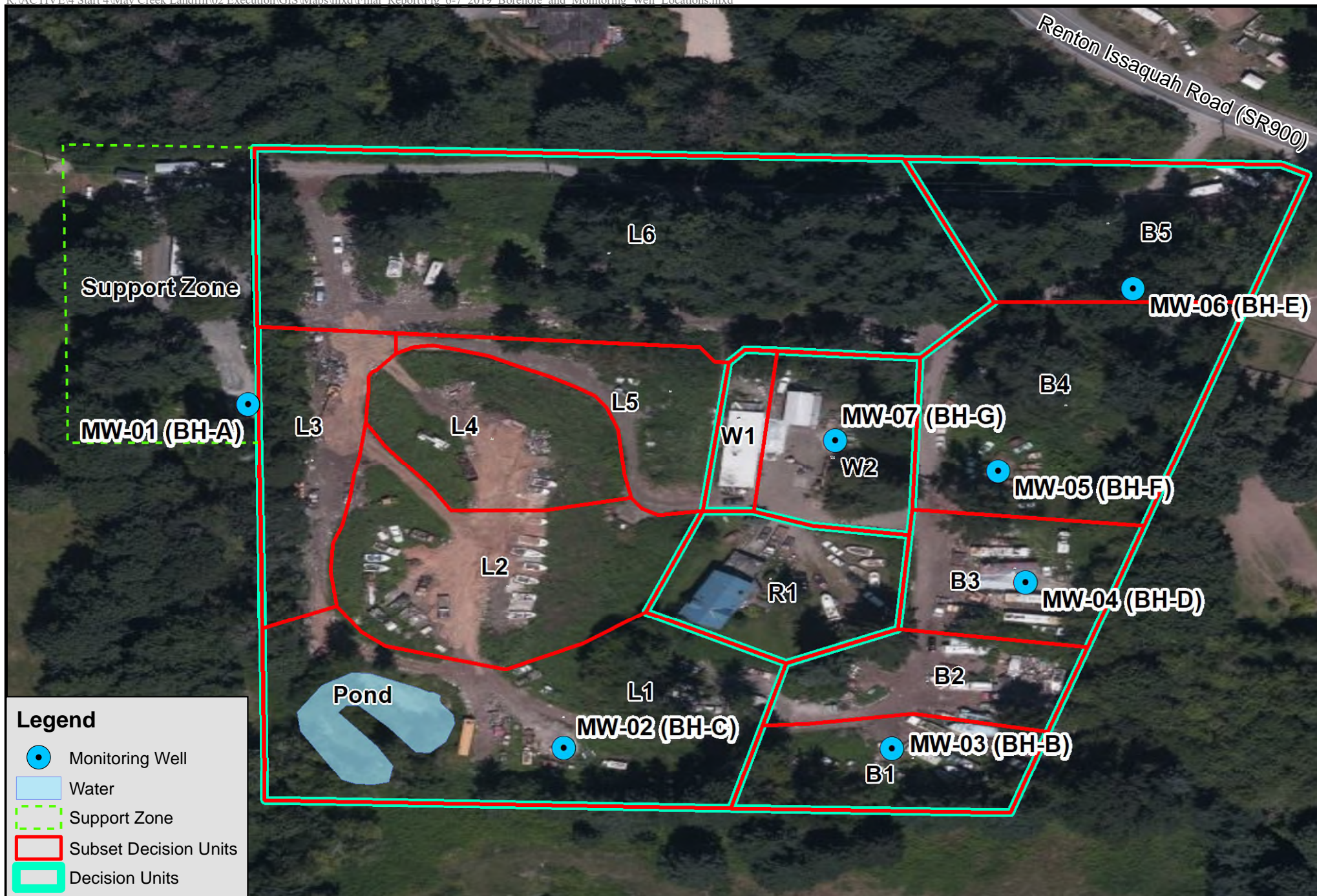










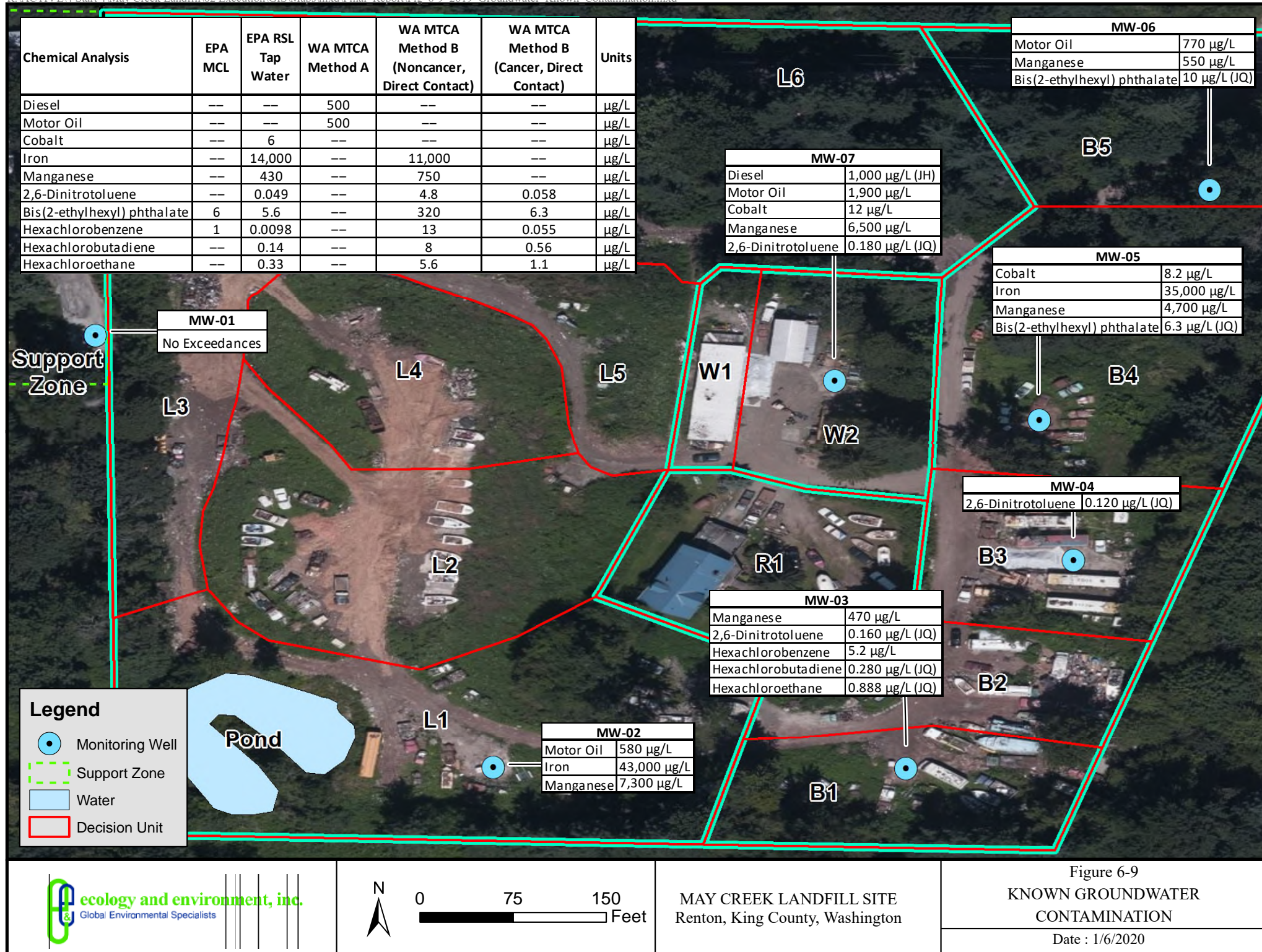




Action Levels						
Chemical Analysis	EPA RSL	EPA RML	WA MTCA Method A	WA MTCA Method B (Noncancer, Direct Contact)	WA MTCA Method B (Cancer, Direct Contact)	Units
Motor Oil	--	--	2,000	--	--	mg/Kg
Gasoline	--	--	30	--	--	mg/Kg
Benzo[a]pyrene	110	11,000	100	24,000	190	µg/Kg
m-Xylene & p-Xylene	580,000	1,700,000	9,000	16,000,000	--	µg/Kg









*Map Acronym Key*

Acronym	Description
EPA	Environmental Protection Agency
J	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
L	The sample result is biased low
mg/kg	Milligrams per Kilogram
MTCA	Model Toxic Control Act
Q	Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit
RML	Removal Management Level
RSL	Regional Screening Level
ug/kg	Micrograms per Kilogram
ug/L	Micrograms per Liter
WA	Washington

*Note:*

*Arsenic and thallium have been omitted from some figures, as they are likely present as naturally occurring compounds.*

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## 7 Summary of Waste Disposal

Waste generated from the site during the Fall 2018 and Summer 2019 removal activities included the contents of containers found to have hazardous substances, contaminated soil, IDW, and solid waste. A summary of the site waste streams, quantities, and disposal facilities is provided in Table 7-1.

<b>Table 7-1 Summary of Waste Disposal</b>		
<i><b>Waste Stream</b></i>	<i><b>Quantity</b></i>	<i><b>Disposal Facility</b></i>
<b>Fall 2018</b>		
Paint related materials	7 x 55-gal drums	Burlington Environmental Tacoma, WA
Flammable liquids	12 x 55-gal drums	
Flammable liquids	1 x 55-gal drum (labpack)	
Waste mercury	1 x 55-gal drum	
Fluorescent light tubes	2 fiber containers	
Aerosols, flammable	1 x 55-gal drum	
Propane cylinders	9 cylinders	
Freon cylinders	4 cylinders	
Freon 21 cylinder	1 cylinder	
Oily water	8 x 55-gal drums	
Alkaline degreaser with cutting oil	1 x 55-gal drum	
Reactive chemicals	1 x 55-gal drum (labpack)	
Organic acids	2 x 55-gal drums (labpack)	
Organic poisons	2 x 55-gal drums (labpack)	
PCB light ballasts	1 x 55-gal metal drum	Waste Management Columbia Ridge Landfill, Arlington, OR
Empty drums and containers	4,980 pounds	
Contaminated soil and woodchips (non-hazardous)	30 tons	
<b>Summer 2019</b>		
Contaminated soil and debris (non-hazardous)	364.79 tons	Waste Management Columbia Ridge Landfill, Arlington, OR
Contaminated water (drilling waste and well purge water)	3,200 pounds	Chemical Waste Management of NW, Arlington, OR

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## 8 Community Relations

Throughout the TCRA, EPA maintained communications with officials from the United States Marshals Service, Washington State Office of the Attorney General, Ecology, KCSWD, as well as the general public. EPA provided technical and contact information about the TCRA to local residents and businesses by distributing a fact sheet on November 28, 2018. A standing desk statement was also created and a Public Information Officer and Community Involvement Coordinator were assigned to the site to communicate with concerned neighbors, businesses, and local government entities. The OSC published and regularly updated a publicly accessible website at [www.response.epa.gov/maycreek](http://www.response.epa.gov/maycreek).

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## 9 Quality Assurance/Quality Control

Quality assurance (QA)/quality control (QC) data are necessary to determine precision and accuracy and to demonstrate the absence of interferences and/or contamination of sampling equipment, glassware, and reagents. Specific QC requirements for laboratory analyses are incorporated in the *USEPA Contract Laboratory Program Statement of Work for Inorganic Superfund Methods Multi-Media Multi-Concentration ISM02.4* (EPA 2016a), the *USEPA Contract Laboratory Program Statement of Work for Organic Superfund Methods Multi-Media Multi-Concentration SOM02.4* (EPA 2016b) and *EPA Contract Laboratory Program Statement of Work for High Resolution Superfund Methods (Multi-Media, Multi-Concentration) HRSM01.2* (EPA 2014). These QC requirements or equivalent requirements found in the analytical methods were followed for analytical work on the project. This section describes the QA/QC measures taken for the project and provides an evaluation of the usability of data presented in this report.

Data from the START–subcontracted laboratories were reviewed by a START chemist. Data qualifiers and labels were applied as necessary according to the following guidance:

- (EPA 2017a) *National Functional Guidelines for Inorganic Superfund Methods Data Review*.
- (EPA 2017b) *National Functional Guidelines for Organic Superfund Methods Data Review*.
- (EPA 2016c) *National Functional Guidelines for High Resolution Superfund Methods Data Review*.
- (EPA 2009) *Guidance for Labeling Externally Validated Laboratory Data for Superfund Use*.

In the absence of other QC guidance, method- and/or standard operating procedure-specific QC limits were also utilized to apply qualifiers to the data.

### 9.1 Satisfaction of Data Quality Objectives

The following (EPA 2000) guidance document was used to establish data quality objectives (DQOs) for this project:

- *Guidance for the Data Quality Objectives Process* (EPA QA/G-4), EPA/600/R-96/055.

EPA determined that definitive data without error and bias determination would be used for the sampling and analyses conducted during the field activities. The data quality achieved during the field work produced sufficient data that met the DQOs stated in the SSSPs (E & E 2018b) (E & E 2019). A detailed discussion of accomplished project objectives is presented in the following sections.

### 9.2 QA/QC Samples

Trip blank QA samples were generally collected at a rate of one per cooler for VOC and gasoline-range TPH analyses; in instances where a trip blank was not collected, the associated sample results were not likely to be affected. A rinsate blank QA sample was collected at a rate

of at least one per 20 for each sample collected using non-dedicated sampling equipment. QC samples included matrix spike/matrix spike duplicate (MS/MSD) and/or blank spike (BS) samples at a rate of one MS/MSD and/or BS per 20 samples per matrix.

### **9.3 Project-Specific Data Quality Objectives**

The laboratory data were reviewed to ensure that DQOs for the project were met. The following describes the laboratories' and/or field team's abilities to meet project DQOs for precision, accuracy and completeness and the field team's ability to meet project DQOs for representativeness and comparability. The laboratories and the field team were able to meet DQOs for the project.

#### **9.3.1 Precision**

Precision measures the reproducibility of the sampling and analytical methodology. Laboratory and field precision are defined as the relative percent difference (RPD) between duplicate sample analyses. The laboratory and field duplicate samples or MS/MSD samples measure the overall precision. The RPD values were reviewed for all commercial laboratory samples. A total of 14 sample results (approximately 0.12 % of the data) were qualified as estimated quantities based on precision outliers; therefore, the project DQO for precision was met.

#### **9.3.2 Accuracy**

Accuracy indicates the conformity of the measurements to fact. Laboratory accuracy is defined as the surrogate spike percent recovery (%R) or the MS/MSD/BS %Rs for all laboratory analyses. The surrogate and MS/MSD/BS/Blank Spike Duplicate %R values were reviewed for all appropriate sample analyses. A total of 90 sample results (approximately 0.77 % of the data) were qualified as estimated quantities (J) based on accuracy outliers; therefore, the project DQO for accuracy was met.

#### **9.3.3 Completeness**

Data completeness is defined as the percentage of usable data (usable data divided by the total possible data). All laboratory data were reviewed for data validation and usability. Thirty-five sample results (approximately 0.30% of the data) were rejected (R); therefore, the project DQO for completeness of 90% was met.

#### **9.3.4 Representativeness**

Data representativeness expresses the degree to which sample data accurately and precisely represent a characteristic of a population, parameter variations at a sampling point or environmental condition. The number and selection of samples were determined in the field to account accurately for site variations and sample matrices. The DQO for representativeness was met.

#### **9.3.5 Comparability**

Comparability is a qualitative parameter expressing the confidence with which one data set can be compared to another. Data produced for this site followed applicable field sampling techniques and specific analytical methodology. The DQO for comparability was met.



## 9.4 Laboratory QA/QC Parameters

The laboratory data also were reviewed for holding times/temperatures/sample containers, laboratory blank samples, serial dilution analyses, rinsate blanks, and trip blanks. These QA/QC parameters are summarized below.

### 9.4.1 Holding Times/Temperatures/Sample Containers

All holding times, sample temperatures, and containers were acceptable except a total of 555 results that were qualified as estimated quantities (J or UJ) based on holding time and/or temperature outliers (approximately 4.7 % of the data).

### 9.4.2 Laboratory Blanks

All laboratory blanks met the frequency criteria. The following potential contaminants of concern were detected in the laboratory blanks:

- Dioxins/Furans: 2,3,7,8-TCDF, 1,2,3,4,6,7,8,9-OCDD and -OCDF, 1,2,3,7,8-PeCDF, 2,3,4,7,8-PeCDF, 1,2,3,7,8-HxCDF, 2,3,4,6,7,8-HxCDF, 1,2,3,4,6,7-HpCDF, 1,2,3,4,6,7,8,-HpCDD, 1,2,3,4,7,8,9-HpCDF
- Inorganics: antimony, beryllium, cadmium, lead
- Petroleum Hydrocarbons: gasoline-range, motor oil-range
- Pesticides: endosulfan I
- SVOCs: butyl benzyl phthalate, di-n-octyl phthalate, benzyl alcohol, bis(2-ethylhexyl) phthalate
- VOCs: chloroform, tetrachloroethene, toluene, m,p-xylene

See the data validation memoranda for results qualified based on blank contamination.

### 9.4.3 Serial Dilution Analyses

Serial dilution analyses met the frequency criteria. No sample results were qualified based on serial dilution outliers.

### 9.4.4 Rinsate Blanks

Rinsate blank analyses were performed at a minimum frequency of one per 20 samples collected using non-dedicated sampling equipment. There were no detections in the rinsate blank.

### 9.4.5 Trip Blanks

Trip blank analyses were generally performed at a frequency of one per sample cooler collected for VOC and gasoline-range TPH analyses. No sample results were qualified based on trip blank results.

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# 10 Summary and Conclusions

EPA completed a TCRA at the May Creek Landfill Site in King County, Washington, where numerous containers of hazardous substances were found in various states of decay with seemingly no system of labeling, organization, or maintenance; and results from previous sampling events indicated presence of contamination in surface soil as well as in surface water runoff.

The purpose of the TCRA was to characterize, inventory, and document the disposal of containers of hazardous substances that had been improperly stored on the site. An additional TCRA objective was to evaluate potential impacts on the environmental condition of the site as a result of on-site waste acceptance, management, and disposal practices.

EPA performed two rounds of field work for the TCRA in 2018 and 2019. From November to December 2018 the following was accomplished:

- Assessed 1,659 containers and either disposed of, rendered useless, or drained of their potentially hazardous contents;
- Excavated and sampled eight test pits in the Landfill Area;
- Collected and analyzed 29 surface and subsurface soil samples, including five shallow test pits, throughout the site in the Workshop, Landfill, and Bus/RV areas;
- Collected and analyzed 12 surface water samples;
- Collected and analyzed five product or waste samples; and
- Collected and analyzed 34 samples for asbestos.

From July to August 2019 the following was accomplished:

- Excavated and disposed of 365 tons of contaminated soil from seven excavation areas in the B1, B3, L2, W1, and W2 DUs;
- Collected and analyzed 81 surface and subsurface soil samples to support excavation activities;
- Collected and analyzed 15 subsurface soil samples from seven borehole; and
- Installed seven monitoring wells and sampled and analyzed groundwater samples from the wells.

As a part of the 2018-2019 removal activities, and including the single day of sampling performed in 2016, EPA has collected dozens of surface and subsurface soil samples from across the site and analyzed them for common environmental contaminants. The results of the analyses on these soil samples collected in 2016, 2018, and 2019 across the 9.97-acre site indicated that the following compounds exceeded EPA risk-based screening levels and/or state cleanup levels (\* indicates compounds likely to exist at similar concentrations naturally):

- Diesel
- Motor oil
- Gasoline

- Cadmium
- Arsenic\*
- Lead
- Thallium\*
- Dioxins
- PCBs
- 1,2-Dibromo-3-Chloropropane
- Benzo[*a*]anthracene
- Benzo[*a*]pyrene
- Benzo[*b*]fluoranthene
- Dibenzo[*a,h*]anthracene
- m-Xylene & p-Xylene

As a part of the 2018 removal activities, EPA collected 12 surface water samples from across the site and analyzed them for common environmental contaminants. The results indicated exceedances of the following compounds at state and/or federal screening levels:

- Arsenic\*
- Lead
- Selenium
- Thallium\*
- Diesel
- Motor Oil

As a part of the 2019 removal activities, EPA collected seven groundwater samples from installed monitoring wells and analyzed them for common environmental contaminants. The results indicated exceedances of the following compounds at state and/or federal screening levels:

- Diesel
- Motor Oil
- Arsenic\*
- Cobalt
- Iron
- Manganese
- 2,6-Dinitrotoluene
- Bis(2-ethylhexyl) phthalate
- Hexachlorobenzene
- Hexachlorobutadiene
- Hexachloroethane

Containers that could be located within the property boundaries of the May Creek Landfill were inspected and either removed, drained, or rendered useless. Some containers that were identified as being in use by the property owner and stored in way consistent with manufacturer guidelines were left in-place. Known areas of contamination that were found within the W1, W2, and B1

DUs were excavated and backfilled. Areas of contamination within the L2 and B3 decision units were excavated to the furthest practicable extent, stopping when factors such as safety, power lines, infrastructure, and slope stability impeded further advancement. Because of this, several areas with known contamination were left in the L2 and B3 DUs. These excavation areas have been backfilled, which also reduces the threat of human and animal exposure at the surface from these areas of known contamination. Additional removal of known and currently unknown contaminated soil may be warranted if/when the large volume of solid waste on the surface of the property is removed.

All the monitoring wells had at least one screening level exceedance. In MW-01 on the neighboring property, the only compound detected above screening levels was arsenic, which was detected at similar concentrations in groundwater samples from every monitoring well installed throughout the site and likely represents a naturally occurring background concentration. For the monitoring wells installed on the May Creek Landfill property (MW-02 through MW-07), groundwater from MW-03 through MW-07 contained at least one of several SVOCs above screening levels, and MW-02, MW-06, and MW-07 contained hydrocarbon compounds above screening levels. Additionally, various metals were detected above screening levels in all site monitoring wells except MW-04.

EPA faced challenges and limitations in attempting to characterize the May Creek Landfill site. The property has had substantial amounts of solid waste material placed across it over several decades, and the property owner continued operations during the two field events in 2018 and 2019. Because it was a dynamic site with many large, immovable vehicles and structures across it, combined with overgrown brush, there are likely locations that could not practicably be assessed for containers or soil contamination. Soil sampling was performed at locations of likely contamination, assessed either visually from soil staining, or proximity to surrounding tanks, containers, built structures, or other visible materials. Significant, distributed contamination was found in all DUs that were sampled other than from the test pits excavated in the main Landfill Area. This indicates that more contamination would likely be found if additional sampling could take place across the site. During future removal activities, materials excavated from areas of remaining known contamination should be treated as hazardous. Additionally, after movement of vehicles and other solid waste, the soil under those objects should be analyzed to determine if contamination is present. KCSWD is expected to work with the property owner in the future to properly dispose of solid waste, and Ecology is expected to perform groundwater sampling on a quarterly basis.

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# **Appendix A**

## **Photographs**

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# 2018 Removal Activities

## May Creek Landfill Renton, WA



Photo: 1      Date: 11/20/2018      Time: 10:22

Overview of B1 prior to field activities.



Photo: 2      Date: 11/20/2018      Time: 10:35

Overview of B2 prior to field activities.



Photo: 3      Date: 12/13/2018      Time: 09:26

Overview of B3 prior to field activities.



Photo: 4      Date: 11/17/2018      Time: 12:18

Overview of B4 prior to field activities.



## May Creek Landfill Renton, WA



Photo: 5      Date: 11/30/2018      Time: 08:09

Overview of B5 prior to field activities.

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Photo: 6      Date: 11/19/2018      Time: 08:18

Overview of L1 prior to field activities.

---



Photo: 7      Date: 12/13/2018      Time: 13:17

Overview of L2 prior to field activities.

---



Photo: 8      Date: 11/17/2018      Time: 15:48

Overview of L3 prior to field activities.

---



## May Creek Landfill Renton, WA



Photo: 9      Date: 11/19/2018      Time: 10:09

Overview of L4 prior to field activities.

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Photo: 10      Date: 11/19/2018      Time: 13:19

Overview of L5 prior to field activities.

---



Photo: 11      Date: 11/17/2018      Time: 12:07

Overview of L6 prior to field activities.

---



Photo: 12      Date: 11/20/2018      Time: 15:06

Overview of W1 prior to field activities.

---



## May Creek Landfill Renton, WA



Photo: 13      Date: 11/20/2018      Time: 15:14

Overview of W2 prior to field activities.



Photo: 14      Date: 11/27/2018      Time: 15:09

Containers collected for inventory and disposal at B2.



Photo: 15      Date: 11/27/2018      Time: 13:48

Propane tanks with truck in B2.



Photo: 16      Date: 12/01/2018      Time: 13:23

A vial of mercury provided to START by a temporary resident.



**May Creek Landfill  
Renton, WA**



Photo: 17      Date: 11/28/2018      Time: 09:15

55-gallon drum containing unknown liquid at B2.



Photo: 18      Date: 11/28/2018      Time: 09:16

START sampling unknown liquid.



Photo: 19      Date: 11/28/2018      Time: 11:10

Oil leaking from damaged 55-gallon drum at B3.



Photo: 20      Date: 11/28/2018      Time: 09:20

Containers collected for inventory and disposal at B3.



**May Creek Landfill  
Renton, WA**



Photo: 21      Date: 11/29/2018      Time: 10:13

Propane tanks collected from blackberry bushes in L5.



Photo: 22      Date: 11/19/2018      Time: 14:06

ERRS removing containers from school bus in L3.



Photo: 23      Date: 11/29/2018      Time: 15:08

Containers collected for inventory and disposal at W2.



Photo: 24      Date: 11/29/2018      Time: 11:57

Containers collected for inventory and disposal at W1.



**May Creek Landfill  
Renton, WA**



Photo: 25      Date: 11/19/2018      Time: 14:58

Containers removed from school bus separated for disposal at L3.

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Photo: 26      Date: 11/30/2018      Time: 14:40

Propane tanks separated and crushed for disposal at L5.

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Photo: 27      Date: 12/07/2018      Time: 13:41

ERRS disposing liquid into 55-gallon drum.

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Photo: 28      Date: 12/07/2019      Time: 08:09

ERRS disposing liquid from 250-gallon tank.

---

**May Creek Landfill  
Renton, WA**



Photo: 29      Date: 12/03/2018      Time: 13:59  
Paint cans overpacked in 55-gallon drum.



Photo: 30      Date: 12/03/2018      Time: 08:21  
Paint cans overpacked in 55-gallon drum.



Photo: 31      Date: 12/08/2018      Time: 08:11  
Impacted 55-gallon drum to be overpacked for disposal.



Photo: 32      Date: 12/08/2018      Time: 08:29  
Impacted 55-gallon drum to be overpacked for disposal.



## May Creek Landfill Renton, WA



Photo: 33      Date: 11/17/2018      Time: 14:25

Suspect ACM flagged for sampling.



Photo: 34      Date: 11/17/2018      Time: 16:08

Suspect ACM flagged for sampling.



Photo: 35      Date: 11/27/2018      Time: 08:34

Excavation of a landfill test pit.



Photo: 36      Date: 11/27/2018      Time: 09:03

Excavation of a landfill test pit.



## May Creek Landfill Renton, WA



Photo: 37      Date: 11/27/2018      Time: 10:21

Excavation of a landfill test pit.



Photo: 38      Date: 11/27/2018      Time: 09:43

Excavated soil from a landfill test pit.



Photo: 39      Date: 12/13/2018      Time: 10:58

Flagged soil sample location at W1.



Photo: 40      Date: 12/10/2018      Time: 11:12

Soil sample collected at W1.



**May Creek Landfill  
Renton, WA**



Photo: 41      Date: 12/10/2018      Time: 15:39

Soil sampling location near a UST in B2.



Photo: 42      Date: 12/12/2018      Time: 08:35

Shallow test pit excavated near a UST in L4.



Photo: 43      Date: 12/12/2018      Time: 09:49

Shallow test pit excavated in W2.



Photo: 44      Date: 12/12/2018      Time: 15:33

Shallow test pit excavated within suspect paint disposal area in B3.



**May Creek Landfill  
Renton, WA**



Photo: 45      Date: 12/11/2018      Time: 09:51

Water sampling from the property's drainage channel.



Photo: 46      Date: 12/11/2018      Time: 10:03

Water sampling from the property's drainage channel.



Photo: 47      Date: 12/13/2018      Time: 09:49

Rendered-safe, empty propane tanks left on site at request of property owner.



Photo: 48      Date: 12/13/2018      Time: 10:32

Overview of B1 after 2018 field activities.



## May Creek Landfill Renton, WA



Photo: 49      Date: 12/13/2019      Time: 09:48  
Overview of B2 after 2018 field activities.

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Photo: 50      Date: 12/13/2018      Time: 09:13  
Overview of B3 after 2018 field activities.

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Photo: 51      Date: 12/13/2018      Time: 08:54  
Overview of B4 after 2018 field activities.

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Photo: 52      Date: 12/13/2018      Time: 08:52  
Overview of B5 after 2018 field activities.

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**May Creek Landfill**  
**Renton, WA**



Photo: 53      Date: 12/14/2018      Time: 14:24  
Overview of L1 after 2018 field activities.

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Photo: 54      Date: 12/13/2018      Time: 13:29  
Overview of L2 after 2018 field activities.

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Photo: 55      Date: 12/14/2018      Time: 10:04  
Overview of L3 after 2018 field activities.

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Photo: 56      Date: 12/13/2018      Time: 13:31  
Overview of L4 after 2018 field activities.

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**May Creek Landfill**  
**Renton, WA**



Photo: 57      Date: 12/13/2018      Time: 13:38

Overview of L5 after 2018 field activities.

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Photo: 58      Date: 12/14/2018      Time: 10:04

Overview of L6 after 2018 field activities.

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Photo: 59      Date: 12/13/2018      Time: 10:58

Overview of W1 after 2018 field activities.

---



Photo: 60      Date: 12/13/2018      Time: 11:09

Overview of W2 after 2018 field activities.

---

# 2019 Removal Activities



**May Creek Landfill**  
**Renton, WA**



Photo: 61      Date: 07/11/2019      Time: 15:30  
Excavation of contaminated soil at W1.



Photo: 62      Date: 08/07/2019      Time: 15:05  
Excavation of contaminated soil at W1.



Photo: 63      Date: 07/11/2019      Time: 15:37  
Excavation of contaminated soil at W2.



Photo: 64      Date: 07/22/2019      Time: 16:59  
Excavation of contaminated soil at L2.



**May Creek Landfill  
Renton, WA**



Photo: 65      Date: 07/13/2019      Time: 09:16

Excavation of contaminated soil at B2.

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Photo: 66      Date: 08/06/2019      Time: 09:32

Excavation of contaminated soil on southern portion of excavator at B3.

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Photo: 67      Date: 08/07/2019      Time: 11:24

Excavation of contaminated soil on northern portion of excavator at B3.

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Photo: 68      Date: 08/07/2019      Time: 11:26

Excavation area at B3, with impacted soil left in place.

---



**May Creek Landfill**  
**Renton, WA**



Photo: 69      Date: 07/17/2019      Time: 05:51  
Excavated area backfilled with clean gravel at W1.

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Photo: 70      Date: 08/08/2019      Time: 13:01  
Excavated area backfilled with clean gravel at W1.

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Photo: 71      Date: 08/08/2019      Time: 13:01  
Excavated area backfilled with clean gravel at W2.

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Photo: 72      Date: 08/05/2019      Time: 14:45  
Excavated areas backfilled with clean gravel at L4.

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**May Creek Landfill  
Renton, WA**



Photo: 73      Date: 07/18/2019      Time: 10:25

Excavated area backfilled with clean gravel at B2.

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Photo: 74      Date: 08/07/2019      Time: 14:59

Excavated area backfilled and sloped with clean gravel at B3.

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Photo: 75      Date: 07/12/2019      Time: 08:10

Installation of groundwater monitoring well.

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Photo: 76      Date: 07/17/2019      Time: 09:08

Completed groundwater monitoring well.

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**May Creek Landfill**  
**Renton, WA**



Photo: 77      Date: 07/23/2019      Time: 11:00  
START collecting water sample at groundwater monitoring well.

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Photo: 78      Date: 07/23/2019      Time: 10:31  
START collecting water sample at groundwater monitoring well.

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# **Appendix B**

## **Fall 2018 Analytical Results**

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Table B-1 2018 Sample and Analysis Summary May Creek Landfill 15753 SE Renton Issaquah Rd Renton, WA																					
Site Area	Sample Number	Field Sample Number	Decision Unit	Date	Matrix	Collection Method	Sample Interval (inches bgs)	NWTPH-HCID	NWTPH-Gx	NWTPH-Dx	Oil and Grease	PCBs	Pesticides	SVOCs	TAL Metals	VOCs	Dioxins and Furans	Asbestos	BTEX	RCRA Metals	Notes
Surface Soil Samples																					
Command Post	18111101	CP01	CP	11/19/2018	SS	Composite	0 - 6	X				X	X	X							
	18111102	CP01-V	CP	11/19/2018	SS	Grab	0 - 6									X					
	18111103	CP02	CP	11/19/2018	SS	Composite	0 - 6	X				X	X	X							
	18111104	CP02-V	CP	11/19/2018	SS	Grab	0 - 6									X					
Landfill Test Pits	18111105	TP01	L4	11/27/2018	SS	Composite	---	X				X	X	X	X	X					
	18111106	TP02	L4	11/27/2018	SS	Composite	---	X				X	X	X	X	X	X				
	18111107	TP03	L2	11/27/2018	SS	Composite	---	X				X	X	X	X	X					
	18111108	TP04	L2	11/27/2018	SS	Composite	---	X				X	X	X	X	X	X				
	18111110	TP05	L3	11/28/2018	SS	Composite	---	X				X	X	X	X	X					
	18111111	TP06	L6	11/28/2018	SS	Composite	---	X				X	X	X	X	X					
	18111112	TP07	L5	11/28/2018	SS	Composite	---	X				X	X	X	X	X	X				
	18111113	TP08	L1	11/28/2018	SS	Composite	---	X				X	X	X	X	X	X				
Workshop Area	18111116	W101SS01	W1	12/10/2018	SS	Grab	0 - 6	X				X	X	X	X	X					
	18111117	W102SS01	W1	12/10/2018	SS	Grab	0 - 6	X				X	X	X	X	X	X				
	18111118	W103SS01	W1	12/10/2018	SS	Grab	0 - 6	X				X	X	X	X	X					
	18111119	W104SS01	W1	12/10/2018	SS	Grab	0 - 6	X		X		X	X	X	X	X					
	18111120	W201SS01	W2	12/10/2018	SS	Grab	0 - 6	X		X		X	X	X	X	X					
	18111128	W204SS01	W2	12/12/2018	SS	Composite	0 - 6	X		X		X	X	X	X	X					
	18111129	W201SB12	W2	12/12/2018	SB	Composite	12 - 24	X				X	X	X	X	X					
	18111130	W202SS01	W2	12/12/2018	SS	Composite	0 - 6	X				X	X	X	X	X					
	18111131	W202SB12	W2	12/12/2018	SB	Composite	12 - 24	X				X	X	X	X	X					
	18111132	W203SS01	W2	12/12/2018	SS	Composite	0 - 6	X				X	X	X	X	X	X				
	18111133	W203SB12	W2	12/12/2018	SB	Composite	12 - 24	X				X	X	X	X	X					
	18111134	W299SB12	W2	12/12/2018	SB	Field Duplicate	12 - 24	X				X	X	X	X	X					
Bus/RV Area	18111121	B201SS01	B1	12/10/2018	SS	Grab	0 - 6	X	X	X	X	X	X	X	X	X					
Landfill Area	18111122	L201SS01	L2	12/11/2018	SS	Grab	0 - 6	X		X		X	X	X	X	X					
	18111123	L201SB12	L2	12/11/2018	SB	Grab	12 - 24	X		X		X	X	X	X	X					
	18111124	L202SS01	L2	12/11/2018	SS	Grab	0 - 6	X				X	X	X	X	X					
	18111127	L202SB12	L2	12/11/2018	SB	Grab	12 - 24	X				X	X	X	X	X					
Surface Water Samples																					
Stream	18111401	SW09	SW09	12/11/2018	SW	Grab	---	X				X	X	X	X	X					
	18111402	SW08	SW08	12/11/2018	SW	Grab	---	X				X	X	X	X	X					
	18111403	SW07	SW07	12/11/2018	SW	Grab	---	X				X	X	X	X	X					
	18111404	SW05	SW05	12/11/2018	SW	Grab	---	X				X	X	X	X	X					
	18111405	SW06	SW06	12/11/2018	SW	Grab	---	X				X	X	X	X	X					
	18111406	SW06	SW06	12/11/2018	SW	Grab	---	X				X	X	X	X	X					
	18111408	SW01	SW01	12/11/2018	SW	Grab	---	X				X	X	X	X	X					
	18111409	SW11	SW11	12/11/2018	SW	Grab	---	X				X	X	X	X	X					
	18111410	SW02	SW02	12/11/2018	SW	Grab	---	X				X	X	X	X	X					
	18111411	SW10	SW10	12/11/2018	SW	Grab	---	X				X	X	X	X	X					
	18111412	SW04	SW04	12/11/2018	SW	Grab	---	X				X	X	X	X	X					
	18111413	SW03	SW03	12/11/2018	SW	Grab	---	X				X	X	X	X	X					
Product/Waste Samples																					
Drum Sample from	18111115	PD01	---	---	Product	Grab	---					X									
Landfill Area	18110001	L6CS	L6	12/11/2018	SS	Composite	---					X				X				X	Drum Spill
	18110002	L6SP	L6	12/11/2018	Product	Composite	---	X				X									
Bus/RV Area	18110003	B301CP01	B3	12/12/2018	Product	Composite	---												X	X	Suspected Paint Disposal Area
	18110004	B302CP01	B3	12/12/2018	Product	Composite	---												X	X	

Table B-1 2018 Sample and Analysis Summary May Creek Landfill 15753 SE Renton Issaquah Rd Renton, WA																					
Site Area	Sample Number	Field Sample Number	Decision Unit	Date	Matrix	Collection Method	Sample Interval (inches bgs)	NWTPH-HCID	NWTPH-Gx	NWTPH-Dx	Oil and Grease	PCBs	Pesticides	SVOCs	TAL Metals	VOCs	Dioxins and Furans	Asbestos	BTEX	RCRA Metals	Notes
Asbestos Samples																					
Landfill Area	18111001	LF-01-BL	L3	11/19/2018	Asbestos	Grab	---											X			
	18111002	LF-02-BL	L3	11/19/2018	Asbestos	Grab	---											X			
	18111003	LF-03-BL	L3	11/19/2018	Asbestos	Grab	---											X			
	18111004	LF-04-BL	L3	11/19/2018	Asbestos	Grab	---											X			
	18111005	LF-05-BL	L4	11/19/2018	Asbestos	Grab	---											X			
	18111006	LF-06-BL	L4	11/19/2018	Asbestos	Grab	---											X			
	18111007	LF-07-BL	L4	11/19/2018	Asbestos	Grab	---											X			
	18111008	LF-08-BL	L2	11/19/2018	Asbestos	Grab	---											X			
	18111009	LF-09-BL	L2	11/19/2018	Asbestos	Grab	---											X			
	18111010	LF-10-BL	L1	11/19/2018	Asbestos	Grab	---											X			
	18111011	LF-11-BL	L5	11/19/2018	Asbestos	Grab	---											X			
	18111012	LF-12-BL	L5	11/19/2018	Asbestos	Grab	---											X			
	18111013	LF-13-BL	L5	11/19/2018	Asbestos	Grab	---											X			
	18111014	LF-14-BL	L6	11/19/2018	Asbestos	Grab	---											X			
	18111015	LF-15-BL	L6	11/19/2018	Asbestos	Grab	---											X			
	18111016	LF-16-BL	L6	11/19/2018	Asbestos	Grab	---											X			
	18111017	LF-17-BL	L6	11/20/2018	Asbestos	Grab	---											X			
	18111018	LF-18-BL	L6	11/20/2018	Asbestos	Grab	---											X			
	18111019	LF-19-BL	L6	11/20/2018	Asbestos	Grab	---											X			
	18111020	LF-20-BL	L6	11/20/2018	Asbestos	Grab	---											X			
	18111021	LF-21-BL	L6	11/20/2018	Asbestos	Grab	---											X			
Bus/RV Area	18111022	BA-01-BL	B2	11/20/2018	Asbestos	Grab	---											X			
	18111023	BA-02-BL	B2	11/20/2018	Asbestos	Grab	---											X			
	18111024	BA-03-BL	B3	11/20/2018	Asbestos	Grab	---											X			
	18111025	BA-04-BL	B3	11/20/2018	Asbestos	Grab	---											X			
	18111026	BA-05-BL	B3	11/20/2018	Asbestos	Grab	---											X			
	18111027	BA-06-BL	B4	11/20/2018	Asbestos	Grab	---											X			
	18111028	WA-01-BL	W2	11/20/2018	Asbestos	Grab	---											X			
	18111029	WA-02-BL	W2	11/20/2018	Asbestos	Grab	---											X			
	18111030	WA-03-BL	W2	11/20/2018	Asbestos	Grab	---											X			
	18111031	BA-06-BL	B5	11/30/2018	Asbestos	Grab	---											X			
	18111032	BA-07-BL	B5	11/30/2018	Asbestos	Grab	---											X			
	18111033	BA-09-BL	B5	11/30/2018	Asbestos	Grab	---											X			
	18111034	BA-10-BL	B5	11/30/2018	Asbestos	Grab	---											X			

Notes:

- = Not Applicable
- bgs = below ground surface
- BTEX = Benzene, Ethylbenzene, Toluene, Xylenes
- NWTPH-Dx = Northwest Total Petroleum Hydrocarbons - Extended Diesel Range (Semi-volatile Petroleum Products)
- NWTPH-Gx = Northwest Total Petroleum Hydrocarbons - Extended Gasoline Range (Volatile Petroleum Products)
- NWTPH-HCID = Northwest Total Petroleum Hydrocarbons - Hydrocarbon Identification
- Pesticides = Organochlorine Pesticides, EPA Method 8081B by GC/ECD
- PCBs = Polychlorinated Biphenyls (PCBs), EPA Method 8082A by GC/ECD
- RV = Recreational Vehicle
- SS = Surface Soil
- SVOCs = Semi-Volatile Organic Compounds, EPA Method 8270D by GC/MS
- SW = Surface Water
- TAL Metals = Target Analyte List Metals, EPA Method 6010C (ICP-AES) and 7471 (CVAA)
- VOCs = Volatile Organic Compounds, EPA Method 8260C by GC/MS

Table B-2 2018 Command Post Soil Samples May Creek Landfill 15753 SE Renton Issaquah Rd Renton, WA															
Chemical Analysis	CAS Number	EPA RSL	EPA RML	WA MTCA Method A	WA MTCA Method B (Noncancer, Direct Contact)	WA MTCA Method B (Cancer, Direct Contact)	Date	11/19/2018		11/19/2018		11/19/2018		11/19/2018	
							Sampling Depth (inches)	0 - 6		0 - 6		0 - 6		0 - 6	
							EPA Sample Number	18111101		18111102		18111103		18111104	
							Field Sample Number	CP01		CP01-V		CP02		CP02-V	
							Units	Result	Qual	Result	Qual	Result	Qual	Result	Qual
VOCs															
1,1,1,2-Tetrachloroethane	630-20-6	2,000	200,000	---	2,400,000	38,000	µg/Kg	---	---	41	U	---	---	37	U
1,1,1-Trichloroethane	71-55-6	8,100,000	24,000,000	2,000	160,000,000	---	µg/Kg	---	---	41	U	---	---	37	U
1,1,2,2-Tetrachloroethane	79-34-5	600	60,000	---	1,600,000	5,000	µg/Kg	---	---	20	U	---	---	19	U
1,1,2-Trichloroethane	79-00-5	1,100	4,500	---	320,000	18,000	µg/Kg	---	---	20	U	---	---	19	U
1,1-Dichloroethane	75-34-3	3,600	360,000	---	16,000,000	180,000	µg/Kg	---	---	41	U	---	---	37	U
1,1-Dichloroethene	75-35-4	230,000	680,000	---	4,000,000	---	µg/Kg	---	---	41	U	---	---	37	U
1,1-Dichloropropene	563-58-6	---	---	---	---	---	µg/Kg	---	---	41	U	---	---	37	U
1,2,3-Trichlorobenzene	87-61-6	63,000	190,000	---	---	---	µg/Kg	---	---	150	UJL	---	---	140	UJL
1,2,3-Trichloropropane	96-18-4	5.1	510	---	320,000	---	µg/Kg	---	---	41	U	---	---	37	U
1,2,4-Trichlorobenzene	120-82-1	24,000	170,000	---	800,000	34,000	µg/Kg	---	---	61	U	---	---	56	U
1,2,4-Trimethylbenzene	95-63-6	300,000	910,000	---	---	---	µg/Kg	---	---	41	U	---	---	37	U
1,2-Dibromo-3-Chloropropane	96-12-8	5.3	530	---	16,000	1,300	µg/Kg	---	---	260	U	---	---	230	U
1,2-Dibromoethane	106-93-4	36	3,600	5	720,000	500	µg/Kg	---	---	20	U	---	---	19	U
1,2-Dichlorobenzene	95-50-1	1,800,000	5,400,000	---	7,200,000	---	µg/Kg	---	---	41	U	---	---	37	U
1,2-Dichloroethane	107-06-2	460	46,000	---	480,000	11,000	µg/Kg	---	---	20	U	---	---	19	U
1,2-Dichloropropane	78-87-5	2,500	47,000	---	7,200,000	27,000	µg/Kg	---	---	20	U	---	---	19	U
1,3,5-Trimethylbenzene	108-67-8	270,000	810,000	---	800,000	---	µg/Kg	---	---	41	U	---	---	37	U
1,3-Dichlorobenzene	541-73-1	---	---	---	---	---	µg/Kg	---	---	61	U	---	---	56	U
1,3-Dichloropropane	142-28-9	1,600,000	4,700,000	---	---	---	µg/Kg	---	---	61	U	---	---	56	U
1,4-Dichlorobenzene	106-46-7	2,600	260,000	---	5,600,000	190,000	µg/Kg	---	---	61	U	---	---	56	U
2,2-Dichloropropane	594-20-7	---	---	---	---	---	µg/Kg	---	---	41	U	---	---	37	U
2-Chlorotoluene	95-49-8	1,600,000	4,700,000	---	1,600,000	---	µg/Kg	---	---	41	U	---	---	37	U
4-Chlorotoluene	106-43-4	1,600,000	4,700,000	---	---	---	µg/Kg	---	---	41	U	---	---	37	U
4-Isopropyltoluene	99-87-6	---	---	---	---	---	µg/Kg	---	---	41	U	---	---	37	U
Benzene	71-43-2	1,200	120,000	30	320,000	18,000	µg/Kg	---	---		R	---	---		R
Bromobenzene	108-86-1	290,000	860,000	---	---	---	µg/Kg	---	---	100	U	---	---	93	U
Bromochloromethane	74-97-5	150,000	450,000	---	---	---	µg/Kg	---	---	41	U	---	---	37	U
Bromodichloromethane	75-27-4	290	29,000	---	1,600,000	16,000	µg/Kg	---	---		R	---	---		R
Bromoform	75-25-2	19,000	1,900,000	---	1,600,000	130,000	µg/Kg	---	---	200	U	---	---	190	U
Bromomethane	74-83-9	6,800	21,000	---	112,000	---	µg/Kg	---	---	200	U	---	---	190	U
Carbon tetrachloride	56-23-5	650	65,000	---	320,000	14,000	µg/Kg	---	---	20	U	---	---	19	U
Chlorobenzene	108-90-7	280,000	830,000	---	1,600,000	---	µg/Kg	---	---	41	U	---	---	37	U
Chloroethane	75-00-3	14,000,000	41,000,000	---	---	---	µg/Kg	---	---	410	U	---	---	370	U
Chloroform	67-66-3	320	32,000	---	800,000	32,000	µg/Kg	---	---	41	U	---	---	37	U
Chloromethane	74-87-3	110,000	330,000	---	---	---	µg/Kg	---	---	100	U	---	---	93	U
cis-1,2-Dichloroethene	156-59-2	160,000	470,000	---	160,000	---	µg/Kg	---	---	61	U	---	---	56	U
cis-1,3-Dichloropropene	10061-01-5	---	---	---	---	---	µg/Kg	---	---	20	U	---	---	19	U
Dibromochloromethane	124-48-1	8,300	830,000	---	1,600,000	12,000	µg/Kg	---	---	41	U	---	---	37	U
Dibromomethane	74-95-3	24,000	71,000	---	800,000	---	µg/Kg	---	---	61	U	---	---	56	U
Dichlorodifluoromethane	75-71-8	87,000	260,000	---	16,000,000	---	µg/Kg	---	---		R	---	---		R
Ethylbenzene	100-41-4	5,800	580,000	6,000	8,000,000	---	µg/Kg	---	---	41	U	---	---	37	U
Hexachlorobutadiene	87-68-3	1,200	120,000	---	80,000	13,000	µg/Kg	---	---	150	U	---	---	140	U
Isopropylbenzene	98-82-8	1,900,000	5,800,000	---	8,000,000	---	µg/Kg	---	---	41	U	---	---	37	U
Methyl tert-butyl ether	1634-04-4	47,000	4,700,000	100	---	560,000	µg/Kg	---	---	41	U	---	---	37	U
Methylene Chloride	75-09-2	57,000	1,000,000	20	480,000	500,000	µg/Kg	---	---	260	U	---	---	230	U
m-Xylene & p-Xylene	179601-23-1	---	---	9,000	---	---	µg/Kg	---	---	200	U	---	---	190	U
Naphthalene	91-20-3	3,800	380,000	5,000	1,600,000	---	µg/Kg	---	---	100	UJL	---	---	93	UJL
n-Butylbenzene	104-51-8	3,900,000	12,000,000	---	4,000,000	---	µg/Kg	---	---	150	U	---	---	140	U
N-Propylbenzene	103-65-1	3,800,000	11,000,000	---	8,000,000	---	µg/Kg	---	---	41	U	---	---	37	U
o-Xylene	95-47-6	650,000	1,900,000	9,000	16,000,000	---	µg/Kg	---	---	61	U	---	---	56	U
sec-Butylbenzene	135-98-8	7,800,000	23,000,000	---	8,000,000	---	µg/Kg	---	---	41	U	---	---	37	U
Styrene	100-42-5	6,000,000	18,000,000	---	16,000,000	---	µg/Kg	---	---	41	U	---	---	37	U



<p>Table B-2</p> <p>2018 Command Post Soil Samples</p> <p>May Creek Landfill</p> <p>15753 SE Renton Issaquah Rd</p> <p>Renton, WA</p>															
Chemical Analysis	CAS Number	EPA RSL	EPA RML	WA MTCA Method A	WA MTCA Method B (Noncancer, Direct Contact)	WA MTCA Method B (Cancer, Direct Contact)	Date	11/19/2018		11/19/2018		11/19/2018		11/19/2018	
							Sampling Depth (inches)	0 - 6		0 - 6		0 - 6		0 - 6	
							EPA Sample Number	18111101		18111102		18111103		18111104	
							Field Sample Number	CP01		CP01-V		CP02		CP02-V	
							Units	Result	Qual	Result	Qual	Result	Qual	Result	Qual
t-Butylbenzene	98-06-6	7,800,000	23,000,000	---	8,000,000	---	µg/Kg	---	---	41	U	---	---	37	U
Tetrachloroethene	127-18-4	24,000	240,000	50	480,000	480,000	µg/Kg	---	---	41	U	---	---	37	U
Toluene	108-88-3	4,900,000	15,000,000	7,000	6,400,000	---	µg/Kg	---	---	150	U	---	---	140	U
trans-1,2-Dichloroethene	156-60-5	1,600,000	4,700,000	---	1,600,000	---	µg/Kg	---	---	61	U	---	---	56	U
trans-1,3-Dichloropropene	10061-02-6	---	---	---	---	---	µg/Kg	---	---	41	U	---	---	37	U
Trichloroethene	79-01-6	940	12,000	30	40,000	12,000	µg/Kg	---	---		R	---	---		R
Trichlorofluoromethane	75-69-4	23,000,000	70,000,000	---	24,000,000	---	µg/Kg	---	---	15	JQ	---	---	190	U
Vinyl chloride	75-01-4	59	5,900	---	240,000	---	µg/Kg	---	---		R	---	---		R
<b>SVOCs</b>															
1,2,4-Trichlorobenzene	120-82-1	24,000	170,000	---	800,000	34,000	µg/Kg	50.1	U	---	---	53.9	U	---	---
1,2-Dichlorobenzene	95-50-1	1,800,000	5,400,000	---	7,200,000	---	µg/Kg	50.1	U	---	---	53.9	U	---	---
1,3-Dichlorobenzene	541-73-1	---	---	---	---	---	µg/Kg	50.1	U	---	---	53.9	U	---	---
1,4-Dichlorobenzene	106-46-7	2,600	260,000	---	5,600,000	190,000	µg/Kg	50.1	U	---	---	53.9	U	---	---
2,4,5-Trichlorophenol	95-95-4	6,300,000	19,000,000	---	8,000,000	---	µg/Kg	25.1	U	---	---	26.9	U	---	---
2,4,6-Trichlorophenol	88-06-2	49,000	190,000	---	80,000	91,000	µg/Kg	25.1	U	---	---	26.9	U	---	---
2,4-Dichlorophenol	120-83-2	190,000	570,000	---	240,000	---	µg/Kg	25.1	U	---	---	26.9	U	---	---
2,4-Dimethylphenol	105-67-9	1,300,000	3,800,000	---	1,600,000	---	µg/Kg	25.1	U	---	---	53.9	U	---	---
2,4-Dinitrophenol	51-28-5	130,000	380,000	---	160,000	---	µg/Kg	752	U	---	---	808	U	---	---
2,4-Dinitrotoluene	121-14-2	1,700	170,000	---	160,000	3,200	µg/Kg	150	U	---	---	162	U	---	---
2,6-Dinitrotoluene	606-20-2	360	36,000	---	24,000	670	µg/Kg	100	U	---	---	108	U	---	---
2-Chloronaphthalene	91-58-7	4,800,000	14,000,000	---	6,400,000	---	µg/Kg	25.1	U	---	---	26.9	U	---	---
2-Chlorophenol	95-57-8	390,000	1,200,000	---	400,000	---	µg/Kg	25.1	U	---	---	26.9	U	---	---
2-Methylnaphthalene	91-57-6	240,000	720,000	---	320,000	---	µg/Kg	25.1	U	---	---	26.9	U	---	---
2-Methylphenol	95-48-7	3,200,000	9,500,000	---	4,000,000	---	µg/Kg	12.5	U	---	---	26.9	U	---	---
2-Nitroaniline	88-74-4	630,000	1,900,000	---	800,000	---	µg/Kg	25.1	U	---	---	26.9	U	---	---
2-Nitrophenol	88-75-5	---	---	---	---	---	µg/Kg	100	U	---	---	108	U	---	---
3,3'-Dichlorobenzidine	91-94-1	1,200	120,000	---	---	2,200	µg/Kg	100	U	---	---	108	U	---	---
3 & 4-Methylphenol	84989-04-8	---	---	---	---	---	µg/Kg	26.9	JQ	---	---	53.9	U	---	---
3-Nitroaniline	99-09-2	---	---	---	---	---	µg/Kg	37.6	U	---	---	40.4	U	---	---
4,6-Dinitro-2-methylphenol	534-52-1	5,100	15,000	---	---	---	µg/Kg	376	U	---	---	404	U	---	---
4-Bromophenyl-phenylether	101-55-3	---	---	---	---	---	µg/Kg	37.6	U	---	---	40.4	U	---	---
4-Chloro-3-methylphenol	59-50-7	6,300,000	19,000,000	---	---	---	µg/Kg	25.1	U	---	---	26.9	U	---	---
4-Chloroaniline	106-47-8	2,700	270,000	---	320,000	5,000	µg/Kg	37.6	U	---	---	40.4	U	---	---
4-Chlorophenyl-phenylether	7005-72-3	---	---	---	---	---	µg/Kg	37.6	U	---	---	40.4	U	---	---
4-Nitroaniline	100-01-6	27,000	760,000	---	---	---	µg/Kg	50.1	U	---	---	53.9	U	---	---
4-Nitrophenol	100-02-7	---	---	---	---	---	µg/Kg	501	U	---	---	539	U	---	---
Acenaphthene	83-32-9	3,600,000	11,000,000	---	4,800,000	---	µg/Kg	25.1	U	---	---	69.4		---	---
Acenaphthylene	208-96-8	---	---	---	---	---	µg/Kg	25.1	U	---	---	6.06	JQ	---	---
Anthracene	120-12-7	18,000,000	54,000,000	---	24,000,000	---	µg/Kg	4.38	JQ	---	---	352		---	---
Azobenzene as 1,2-Diphenylhydrazine	103-33-3	5,600	560,000	---	---	9,100	µg/Kg	25.1	U	---	---	26.9	U	---	---
Benzidine	92-87-5	0.53	53	---	240,000	4.3	µg/Kg	2,920	U	---	---	3,140	U	---	---
Benzo(a)anthracene	56-55-3	1,100	110,000	---	---	1,370	µg/Kg	23.5		---	---	1,180		---	---
Benzo(a)pyrene	50-32-8	110	11,000	100	---	137	µg/Kg	27.9	JQ	---	---	1,540		---	---
Benzo(b)fluoranthene	205-99-2	1,100	110,000	---	---	1,370	µg/Kg	42.6	JQ	---	---	2,430		---	---
Benzo(g,h,i)perylene	191-24-2	---	---	---	---	---	µg/Kg	50.1	U	---	---	426		---	---
Benzo(k)fluoranthene	207-08-9	11,000	1,100,000	---	---	13,700	µg/Kg	16.6	JQ	---	---	973		---	---
Benzoic acid	65-85-0	250,000,000	760,000,000	---	320,000,000	---	µg/Kg	1,250	U	---	---	1,350	U	---	---
Benzyl alcohol	100-51-6	6,300,000	19,000,000	---	8,000,000	---	µg/Kg	5.64	JQ	---	---	26.9	U	---	---
Bis(2-chloroethoxy)methane	111-91-1	190,000	570,000	---	---	---	µg/Kg	25.1	U	---	---	26.9	U	---	---
Bis(2-chloroethyl)ether	111-44-4	230	23,000	---	---	910	µg/Kg	376	U	---	---	404	U	---	---
Bis(2-chloroisopropyl)ether	108-60-1	3,100,000	9,400,000	---	3,200,000	14,000	µg/Kg	501	U	---	---	539	U	---	---
Bis(2-ethylhexyl)phthalate	117-81-7	39,000	3,800,000	---	1,600,000	71,400	µg/Kg	52.9	JQ	---	---	237		---	---
Butyl benzyl phthalate	85-68-7	290,000	29,000,000	---	16,000,000	530,000	µg/Kg	54.8	JQ	---	---	163		---	---

Table B-2 2018 Command Post Soil Samples May Creek Landfill 15753 SE Renton Issaquah Rd Renton, WA															
Chemical Analysis	CAS Number	EPA RSL	EPA RML	WA MTCA Method A	WA MTCA Method B (Noncancer, Direct Contact)	WA MTCA Method B (Cancer, Direct Contact)	Date	11/19/2018		11/19/2018		11/19/2018		11/19/2018	
							Sampling Depth (inches)	0 - 6		0 - 6		0 - 6		0 - 6	
							EPA Sample Number	18111101		18111102		18111103		18111104	
							Field Sample Number	CP01		CP01-V		CP02		CP02-V	
							Units	Result	Qual	Result	Qual	Result	Qual	Result	Qual
Carbazole	86-74-8	---	---	---	---	---	µg/Kg	4.7	JQ	---	---	408		---	---
Chrysene	218-01-9	110,000	11,000,000	---	---	---	µg/Kg	26		---	---	1,340		---	---
Dibenzo(a,h)anthracene	53-70-3	110	11,000	---	---	---	µg/Kg	100	U	---	---	137	JQ	---	---
Dibenzofuran	132-64-9	73,000	220,000	---	80,000	---	µg/Kg	25.1	U	---	---	33.3		---	---
Diethyl phthalate	84-66-2	51,000,000	150,000,000	---	64,000,000	---	µg/Kg	25.1	U	---	---	26.9	U	---	---
Dimethyl phthalate	131-11-3	---	---	---	---	---	µg/Kg	3.13	JQ	---	---	13.5	U	---	---
Di-n-butyl phthalate	84-74-2	6,300,000	19,000,000	---	8,000,000	---	µg/Kg	13.8	JQ	---	---	26.9	U	---	---
Di-n-octyl phthalate	117-84-0	630,000	1,900,000	---	800,000	---	µg/Kg	100	U	---	---	108	U	---	---
Fluoranthene	206-44-0	2,400,000	7,200,000	---	3,200,000	---	µg/Kg	45.4		---	---	2,800		---	---
Fluorene	86-73-7	2,400,000	7,200,000	---	3,200,000	---	µg/Kg	25.1	U	---	---	68.3		---	---
Hexachlorobenzene	118-74-1	210	21,000	---	64,000	630	µg/Kg	25.1	U	---	---	26.9	U	---	---
Hexachlorobutadiene	87-68-3	1,200	120,000	---	80,000	13,000	µg/Kg	50.1	U	---	---	53.9	U	---	---
Hexachlorocyclopentadiene	77-47-4	1,800	5,300	---	480,000	---	µg/Kg	501	U	---	---	539	U	---	---
Hexachloroethane	67-72-1	1,800	130,000	---	56,000	25,000	µg/Kg	50.1	U	---	---	53.9	U	---	---
Indeno(1,2,3-cd)pyrene	193-39-5	1,100	110,000	---	---	1,370	µg/Kg	100	U	---	---	597		---	---
Isophorone	78-59-1	570,000	38,000,000	---	16,000,000	1,100,000	µg/Kg	150	U	---	---	162	U	---	---
Naphthalene	91-20-3	3,800	380,000	5,000	1,600,000	---	µg/Kg	50.1	U	---	---	108	U	---	---
Nitrobenzene	98-95-3	5,100	380,000	---	160,000	---	µg/Kg	50.1	U	---	---	53.9	U	---	---
N-Nitrosodimethylamine	62-75-9	2	200	---	640	---	µg/Kg	50.1	U	---	---	53.9	U	---	---
N-Nitrosodi-n-propylamine	621-64-7	78	7,800	---	---	---	µg/Kg	75.2	U	---	---	80.8	U	---	---
N-Nitrosodiphenylamine	86-30-6	110,000	11,000,000	---	---	---	µg/Kg	25.1	U	---	---	26.9	U	---	---
Pentachlorophenol	87-86-5	1,000	100,000	---	400,000	2,500	µg/Kg	376	U	---	---	404	U	---	---
Phenanthrene	85-01-8	---	---	---	---	---	µg/Kg	19.7	JQ	---	---	1,150		---	---
Phenol	108-95-2	19,000,000	57,000,000	---	24,000,000	---	µg/Kg	50.1	U	---	---	53.9	U	---	---
Pyrene	129-00-0	1,800,000	5,400,000	---	2,400,000	---	µg/Kg	42.9		---	---	2,870		---	---
TAL Metals															
Aluminum	7429-90-5	77,000	230,000	---	80,000	---	mg/Kg	12,300		---	---	15,900		---	---
Antimony	7440-36-0	31	94	---	32	---	mg/Kg	1.52	UJL	---	---	1.67	UJL	---	---
Arsenic	7440-38-2	0.68	68	20	24	0.67	mg/Kg	7.99		---	---	9.95		---	---
Barium	7440-39-3	15,000	46,000	---	16,000	---	mg/Kg	55.4	JL	---	---	80.4	JL	---	---
Beryllium	7440-41-7	160	470	---	160	---	mg/Kg	0.152	U	---	---	0.167	U	---	---
Cadmium	7440-43-9	71	210	2	---	---	mg/Kg	0.246		---	---	0.317		---	---
Calcium	7440-70-2	---	---	---	---	---	mg/Kg	4,240		---	---	3,980		---	---
Chromium	7440-47-3	---	---	2,000	---	---	mg/Kg	11.9		---	---	20.2		---	---
Cobalt	7440-48-4	23	70	---	---	---	mg/Kg	5.62		---	---	6.31		---	---
Copper	7440-50-8	3,100	9,400	---	3,200	---	mg/Kg	27.4	JL	---	---	28.8	JL	---	---
Iron	7439-89-6	55,000	160,000	---	56,000	---	mg/Kg	15,700		---	---	14,500		---	---
Lead	7439-92-1	400	400	250	---	---	mg/Kg	18.3	JL	---	---	21.2	JL	---	---
Magnesium	7439-95-4	---	---	---	---	---	mg/Kg	3,360		---	---	3,820		---	---
Manganese	7439-96-5	---	---	---	11,200	---	mg/Kg	313		---	---	477		---	---
Mercury	7439-97-6	11	33	2	---	---	mg/Kg	0.079		---	---	0.092		---	---
Nickel	7440-02-0	1,500	4,600	---	1,600	---	mg/Kg	16.7		---	---	20		---	---
Potassium	7440-09-7	---	---	---	---	---	mg/Kg	581	JL	---	---	692	JL	---	---
Selenium	7782-49-2	390	1,200	---	400	---	mg/Kg	1.52	U	---	---	1.67	U	---	---
Silver	7440-22-4	390	1,200	---	400	---	mg/Kg	0.458	JQ	---	---	0.57	JQ	---	---
Sodium	7440-23-5	---	---	---	---	---	mg/Kg	184		---	---	342		---	---
Thallium	7440-28-0	0.78	2.3	---	0.8	---	mg/Kg	15.2	U	---	---	16.7	U	---	---
Vanadium	7440-62-2	390	1,200	---	400	---	mg/Kg	28.4		---	---	32.4		---	---
Zinc	7440-66-6	23,000	70,000	---	24,000	---	mg/Kg	52	JL	---	---	63	JL	---	---

Table B-2 2018 Command Post Soil Samples May Creek Landfill 15753 SE Renton Issaquah Rd Renton, WA															
Chemical Analysis	CAS Number	EPA RSL	EPA RML	WA MTCA Method A	WA MTCA Method B (Noncancer, Direct Contact)	WA MTCA Method B (Cancer, Direct Contact)	Date	11/19/2018		11/19/2018		11/19/2018		11/19/2018	
							Sampling Depth (inches)	0 - 6		0 - 6		0 - 6		0 - 6	
							EPA Sample Number	18111101		18111102		18111103		18111104	
							Field Sample Number	CP01		CP01-V		CP02		CP02-V	
							Units	Result	Qual	Result	Qual	Result	Qual	Result	Qual
NWTPH-HCID															
Gasoline	STL00228	---	---	100 <sup>(1)</sup>	---	---	mg/Kg	68	U	---	---	63	U	---	---
#2 Diesel (>C12-C24)	STL00096	---	---	2,000 <sup>(2)</sup>	---	---	mg/Kg	170	U	---	---	160	U	---	---
Motor Oil	STL00299	---	---	2,000 <sup>(2)</sup>	---	---	mg/Kg	490		---	---	390		---	---
PCBs															
Aroclor 1016	12674-11-2	4.1	12	---	5.6	14	mg/Kg	0.25	U	---	---	0.268	U	---	---
Aroclor 1221	11104-28-2	0.2	20	---	---	---	mg/Kg	0.625	U	---	---	0.669	U	---	---
Aroclor 1232	11141-16-5	0.17	17	---	---	---	mg/Kg	0.25	U	---	---	0.268	U	---	---
Aroclor 1242	53469-21-9	0.23	23	---	---	---	mg/Kg	0.25	U	---	---	0.268	U	---	---
Aroclor 1248	12672-29-6	0.23	23	---	---	---	mg/Kg	0.25	U	---	---	0.268	U	---	---
Aroclor 1254	11097-69-1	0.24	3.5	---	1.6	0.5	mg/Kg	0.25	U	---	---	0.268	U	---	---
Aroclor 1260	11096-82-5	0.24	24	---	---	0.5	mg/Kg	0.25	U	---	---	0.268	U	---	---
Total PCB	1336-36-3	0.23	23	1	---	0.5	mg/Kg	0.625	U	---	---	0.669	U	---	---
Pesticides															
4,4'-DDD	72-54-8	1,900	5,700	---	---	4,200	µg/Kg	5	UJL	---	---	5.36	UJL	---	---
4,4'-DDE	72-55-9	2,000	70,000	---	---	2,900	µg/Kg	5	UJL	---	---	5.36	UJL	---	---
4,4'-DDT	50-29-3	1,900	110,000	3,000	40,000	2,900	µg/Kg	5	UJL	---	---	5.36	UJL	---	---
Aldrin	309-00-2	39	3,900	---	2,400	59	µg/Kg	5	UJL	---	---	10.7	UJL	---	---
alpha-BHC	319-84-6	86	8,600	---	640,000	160	µg/Kg	5	UJL	---	---	5.36	UJL	---	---
alpha-Chlordane	5103-71-9	---	---	---	---	---	µg/Kg	5	UJL	---	---	5.36	UJL	---	---
beta-BHC	319-85-7	300	30,000	---	---	560	µg/Kg	9.99	UJL	---	---	5.36	UJL	---	---
delta-BHC	319-86-8	---	---	---	---	---	µg/Kg	9.99	UJL	---	---	10.7	UJL	---	---
Dieldrin	60-57-1	34	3,400	---	4,000	63	µg/Kg	5	UJL	---	---	5.36	UJL	---	---
Endosulfan I	959-98-8	---	---	---	---	---	µg/Kg	5	UJL	---	---	5.36	UJL	---	---
Endosulfan II	33213-65-9	---	---	---	---	---	µg/Kg	5	UJL	---	---	10.7	UJL	---	---
Endosulfan sulfate	1031-07-8	---	---	---	---	---	µg/Kg	9.99	UJL	---	---	5.36	UJL	---	---
Endrin	72-20-8	19,000	57,000	---	24,000	---	µg/Kg	5	UJL	---	---	5.36	UJL	---	---
Endrin aldehyde	7421-93-4	---	---	---	---	---	µg/Kg	9.99	UJL	---	---	5.36	UJL	---	---
Endrin ketone	53494-70-5	---	---	---	---	---	µg/Kg	9.99	UJL	---	---	5.36	UJL	---	---
gamma-BHC	58-89-9	570	57,000	10	24,000	910	µg/Kg	5	UJL	---	---	5.36	UJL	---	---
gamma-Chlordane	5566-34-7	---	---	---	---	---	µg/Kg	5	UJL	---	---	10.7	UJL	---	---
Heptachlor	76-44-8	130	13,000	---	40,000	220	µg/Kg	5	UJL	---	---	10.7	UJL	---	---
Heptachlor epoxide	1024-57-3	70	3,100	---	1,040	110	µg/Kg	5	UJL	---	---	5.36	UJL	---	---
Methoxychlor	72-43-5	320,000	950,000	---	400,000	---	µg/Kg	5	UJL	---	---	5.36	UJL	---	---
Toxaphene	8001-35-2	490	17,000	---	---	910	µg/Kg	625	UJL	---	---	669	UJL	---	---



Notes:

- (1) MTCA cleanup levels for total petroleum hydrocarbons (TPH) apply to the NWTPH-Gx and NWTPH-Dx analyses. They are presented for the NWTPH-HCID results for comparison purposes only.
- 426** = Detected results are bolded.
- 1,180 = Yellow highlights indicate results that exceed listed screening levels.
- = Not Applicable
- µg/kg = micrograms per kilogram
- CAS = Chemical Abstracts Service
- EPA RML = Environmental Protection Agency (EPA) Removal Management Levels (RML), 40 CFR Part 300, November 2018
- EPA RSL = Environmental Protection Agency (EPA) Regional Screening Levels (RSL), 40 CFR Part 300, November 2018
- H = The sample result is biased high.
- J = The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
- K = The bias of the sample is not known.
- L = The sample result is biased low.
- mg/Kg = milligrams per kilogram
- NWTPH-Dx = Northwest Total Petroleum Hydrocarbons - Extended Diesel Range (Semi-volatile Petroleum Products)
- NWTPH-HCID = Northwest Total Petroleum Hydrocarbons - Hydrocarbon Identification
- Pesticides = Organochlorine Pesticides, EPA Method 8081B by GC/ECD
- PCBs = Polychlorinated Biphenyls (PCBs), EPA Method 8082A by GC/ECD
- Q = Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.
- Qual = Qualifier
- R = The data is rejected and unusable. The analyte may or may not be present in the sample.
- SVOCs = Semi-Volatile Organic Compounds, EPA Method 8270D by GC/MS
- TAL Metals = Target Analyte List Metals, EPA Method 6010C (ICP-AES) and 7471 (CVAA)
- U = The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- VOCs = Volatile Organic Compounds, EPA Method 8260C by GC/MS
- = Washington State (WA) Model Toxics Control Act (MTCA) Cleanup Regulation Method A (unrestricted land use) value from the Cleanup and Risk Calculations tables (CLARC),
- WA MTCA Method A chapter 173-340 WAC, August 2015
- = Washington State (WA) Model Toxics Control Act (MTCA) Cleanup Regulation Method B (unrestricted land use) value from the Cleanup and Risk Calculations tables (CLARC),
- WA MTCA Method B chapter 173-340 WAC, August 2015

Table B-3 2018 Landfill Test Pit Soil Samples May Creek Landfill 15753 SE Renton Issaquah Rd Renton, WA																							
Chemical Analysis	CAS Number	EPA RSL	EPA RML	WA MTCA Method A	WA MTCA Method B (Noncancer, Direct Contact)	WA MTCA Method B (Cancer, Direct Contact)	Date	11/27/2018		11/27/2018		11/27/2018		11/27/2018		11/28/2018		11/28/2018		11/28/2018		11/28/2018	
							EPA Sample Number	18111105		18111106		18111107		18111108		18111110		18111111		18111112		18111113	
							Sampling Depth (feet)	20 ft. bgs		24 ft. bgs		16.5 ft. bgs		25 ft. bgs		1.5 ft. bgs		15 ft. bgs		13 ft. bgs		11.5 ft. bgs	
							Field Sample Number	TP01		TP02		TP03		TP04		TP05		TP06		TP07		TP08	
							Units	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
VOCs																							
1,1,1,2-Tetrachloroethane	630-20-6	2,000	200,000	---	2,400,000	38,000	µg/Kg	53	U	70	U	57	U	61	U	84	U	83	U	77	U	100	U
1,1,1-Trichloroethane	71-55-6	8,100,000	24,000,000	2,000	160,000,000	---	µg/Kg	53	U	70	U	57	U	61	U	84	U	83	U	77	U	100	U
1,1,2,2-Tetrachloroethane	79-34-5	600	60,000	---	1,600,000	5,000	µg/Kg	26	U	35	U	29	U	30	U	42	U	41	U	39	U	50	U
1,1,2-Trichloroethane	79-00-5	1,100	4,500	---	320,000	18,000	µg/Kg	26	U	35	U	29	U	30	U	42	U	41	U	39	U	50	U
1,1-Dichloroethane	75-34-3	3,600	360,000	---	16,000,000	180,000	µg/Kg	53	U	70	U	57	U	61	U	84	U	83	U	77	U	100	U
1,1-Dichloroethene	75-35-4	230,000	680,000	---	4,000,000	---	µg/Kg	53	U	70	U	57	U	61	U	84	U	83	U	77	U	100	U
1,1-Dichloropropene	563-58-6	---	---	---	---	---	µg/Kg	53	U	70	U	57	U	61	U	84	U	83	U	77	U	100	U
1,2,3-Trichlorobenzene	87-61-6	63,000	190,000	---	---	---	µg/Kg	200	UJL	260	UJL	210	UJL	230	UJL	310	UJL	310	UJL	290	UJL	380	UJL
1,2,3-Trichloropropane	96-18-4	5.1	510	---	320,000	---	µg/Kg	53	U	70	U	57	U	61	U	84	U	83	U	77	U	100	U
1,2,4-Trichlorobenzene	120-82-1	24,000	170,000	---	800,000	34,000	µg/Kg	79	UJL	110	U	86	U	91	U	130	UJL	120	UJL	120	UJL	150	UJL
1,2,4-Trimethylbenzene	95-63-6	300,000	910,000	---	---	---	µg/Kg	53	U	70	U	57	U	61	U	84	U	83	U	77	U	100	U
1,2-Dibromo-3-Chloropropane	96-12-8	5.3	530	---	16,000	1,300	µg/Kg	330	U	440	U	360	U	380	U	140	JQ	520	U	480	U	630	U
1,2-Dibromoethane	106-93-4	36	3,600	5	720,000	500	µg/Kg	26	U	35	U	29	U	30	U	42	U	41	U	39	U	50	U
1,2-Dichlorobenzene	95-50-1	1,800,000	5,400,000	---	7,200,000	---	µg/Kg	53	U	70	U	57	U	61	U	21	JQ	83	U	77	U	100	U
1,2-Dichloroethane	107-06-2	460	46,000	---	480,000	11,000	µg/Kg	26	U	35	U	29	U	30	U	42	U	41	U	39	U	50	U
1,2-Dichloropropane	78-87-5	2,500	47,000	---	7,200,000	27,000	µg/Kg	26	U	35	U	29	U	30	U	42	U	41	U	39	U	50	U
1,3,5-Trimethylbenzene	108-67-8	270,000	810,000	---	800,000	---	µg/Kg	53	U	70	U	57	U	61	U	84	U	83	U	77	U	100	U
1,3-Dichlorobenzene	541-73-1	---	---	---	---	---	µg/Kg	79	U	110	U	86	U	91	U	130	U	120	U	120	U	150	U
1,3-Dichloropropane	142-28-9	1,600,000	4,700,000	---	---	---	µg/Kg	79	U	110	U	86	U	91	U	130	U	120	U	120	U	150	U
1,4-Dichlorobenzene	106-46-7	2,600	260,000	---	5,600,000	190,000	µg/Kg	79	U	110	U	86	U	91	U	130	U	120	U	120	U	150	U
2,2-Dichloropropane	594-20-7	---	---	---	---	---	µg/Kg	53	U	70	U	57	U	61	U	84	U	83	U	77	U	100	U
2-Chlorotoluene	95-49-8	1,600,000	4,700,000	---	1,600,000	---	µg/Kg	53	U	70	U	57	U	61	U	84	U	83	U	77	U	100	U
4-Chlorotoluene	106-43-4	1,600,000	4,700,000	---	---	---	µg/Kg	53	U	70	U	57	U	61	U	84	U	83	U	77	U	100	U
4-Isopropyltoluene	99-87-6	---	---	---	---	---	µg/Kg	53	U	70	U	22	JQ	61	U	84	U	83	U	77	U	100	U
Benzene	71-43-2	1,200	120,000	30	320,000	18,000	µg/Kg	40	U	53	U	43	U	45	U	63	U	62	U	58	U	75	U
Bromobenzene	108-86-1	290,000	860,000	---	---	---	µg/Kg	130	U	180	U	140	U	150	U	210	U	210	U	190	U	250	U
Bromochloromethane	74-97-5	150,000	450,000	---	---	---	µg/Kg	53	U	70	U	57	U	61	U	84	U	83	U	77	U	100	U
Bromodichloromethane	75-27-4	290	29,000	---	1,600,000	16,000	µg/Kg	79	U	110	U	86	U	91	U	130	U	120	U	120	U	150	U
Bromoform	75-25-2	19,000	1,900,000	---	1,600,000	130,000	µg/Kg	260	U	350	U	290	U	300	U	420	U	410	U	390	U	500	U
Bromomethane	74-83-9	6,800	21,000	---	112,000	---	µg/Kg	260	U	350	U	290	U	300	U	420	U	410	U	390	U	500	U
Carbon tetrachloride	56-23-5	650	65,000	---	320,000	14,000	µg/Kg	26	U	35	U	29	U	30	U	42	U	41	U	39	U	50	U
Chlorobenzene	108-90-7	280,000	830,000	---	1,600,000	---	µg/Kg	53	U	70	U	57	U	61	U	84	U	83	U	77	U	100	U
Chloroethane	75-00-3	14,000,000	41,000,000	---	---	---	µg/Kg		R		R		R		R		R		R		R		R
Chloroform	67-66-3	320	32,000	---	800,000	32,000	µg/Kg	53	U	70	U	57	U	61	U	84	U	83	U	77	U	100	U
Chloromethane	74-87-3	110,000	330,000	---	---	---	µg/Kg	130	U	180	U	140	U	150	U	210	U	210	U	190	U	250	U
cis-1,2-Dichloroethene	156-59-2	160,000	470,000	---	160,000	---	µg/Kg	79	U	110	U	86	U	91	U	130	U	120	U	120	U	150	U
cis-1,3-Dichloropropene	10061-01-5	---	---	---	---	---	µg/Kg	26	U	35	U	29	U	30	U	42	U	41	U	39	U	50	U
Dibromochloromethane	124-48-1	8,300	830,000	---	1,600,000	12,000	µg/Kg	53	U	70	U	57	U	61	U	84	U	83	U	77	U	100	U
Dibromomethane	74-95-3	24,000	71,000	---	800,000	---	µg/Kg	79	U	110	U	86	U	91	U	130	U	120	U	120	U	150	U
Dichlorodifluoromethane	75-																						

Table B-3 2018 Landfill Test Pit Soil Samples May Creek Landfill 15753 SE Renton Issaquah Rd Renton, WA																					
Chemical Analysis	CAS Number	EPA RSL	EPA RML	WA MTCA Method A	WA MTCA Method B (Noncancer, Direct Contact)	WA MTCA Method B (Cancer, Direct Contact)	Date	11/27/2018		11/27/2018		11/27/2018		11/27/2018		11/28/2018		11/28/2018		11/28/2018	
							EPA Sample Number	18111105		18111106		18111107		18111108		18111110		18111111		18111112	
							Sampling Depth (feet)	20 ft. bgs		24 ft. bgs		16.5 ft. bgs		25 ft. bgs		1.5 ft. bgs		15 ft. bgs		13 ft. bgs	
							Field Sample Number	TP01		TP02		TP03		TP04		TP05		TP06		TP07	
							Units	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
t-Butylbenzene	98-06-6	7,800,000	23,000,000	---	8,000,000	---	µg/Kg	53	U	70	U	57	U	61	U	84	U	83	U	77	U
Tetrachloroethene	127-18-4	24,000	240,000	50	480,000	480,000	µg/Kg	53	U	70	U	57	U	61	U	84	U	83	U	77	U
Toluene	108-88-3	4,900,000	15,000,000	7,000	6,400,000	---	µg/Kg	200	U	260	U	210	U	230	U	310	U	310	U	290	U
trans-1,2-Dichloroethene	156-60-5	1,600,000	4,700,000	---	1,600,000	---	µg/Kg	79	U	110	U	86	U	91	U	130	U	120	U	120	U
trans-1,3-Dichloropropene	10061-02-6	---	---	---	---	---	µg/Kg	53	U	70	U	57	U	61	U	84	U	83	U	77	U
Trichloroethene	79-01-6	940	12,000	30	40,000	12,000	µg/Kg	79	U	110	U	86	U	91	U	130	U	120	U	120	U
Trichlorofluoromethane	75-69-4	23,000,000	70,000,000	---	24,000,000	---	µg/Kg	260	U	350	U	290	U	300	U	420	U	410	U	390	U
Vinyl chloride	75-01-4	59	5,900	---	240,000	---	µg/Kg	200	U	260	U	210	U	230	U	310	U	310	U	290	U
SVOCs																					
1,2,4-Trichlorobenzene	120-82-1	24,000	170,000	---	800,000	34,000	µg/Kg	48	U	49.6	U	50.4	U	50.4	U	46.1	U	46.5	U	47.1	U
1,2-Dichlorobenzene	95-50-1	1,800,000	5,400,000	---	7,200,000	---	µg/Kg	48	U	49.6	U	50.4	U	50.4	U	46.1	U	46.5	U	47.1	U
1,3-Dichlorobenzene	541-73-1	---	---	---	---	---	µg/Kg	48	U	49.6	U	50.4	U	50.4	U	46.1	U	46.5	U	47.1	U
1,4-Dichlorobenzene	106-46-7	2,600	260,000	---	5,600,000	190,000	µg/Kg	48	U	49.6	U	50.4	U	50.4	U	46.1	U	46.5	U	47.1	U
2,4,5-Trichlorophenol	95-95-4	6,300,000	19,000,000	---	8,000,000	---	µg/Kg	24	U	24.8	U	25.2	U	25.2	U	23	U	23.2	U	23.5	U
2,4,6-Trichlorophenol	88-06-2	49,000	190,000	---	80,000	91,000	µg/Kg	24	U	24.8	U	25.2	U	25.2	U	23	U	23.2	U	23.5	U
2,4-Dichlorophenol	120-83-2	190,000	570,000	---	240,000	---	µg/Kg	24	U	24.8	U	25.2	U	25.2	U	23	U	23.2	U	23.5	U
2,4-Dimethylphenol	105-67-9	1,300,000	3,800,000	---	1,600,000	---	µg/Kg	24	U	24.8	U	25.2	U	25.2	U	23	U	23.2	U	23.5	U
2,4-Dinitrophenol	51-28-5	130,000	380,000	---	160,000	---	µg/Kg	719	U	744	U	757	U	756	U	691	U	697	U	706	U
2,4-Dinitrotoluene	121-14-2	1,700	170,000	---	160,000	3,200	µg/Kg	144	U	149	U	151	U	151	U	138	U	139	U	141	U
2,6-Dinitrotoluene	606-20-2	360	36,000	---	24,000	670	µg/Kg	95.9	U	99.2	U	101	U	101	U	92.1	U	92.9	U	94.1	U
2-Chloronaphthalene	91-58-7	4,800,000	14,000,000	---	6,400,000	---	µg/Kg	24	U	24.8	U	25.2	U	25.2	U	23	U	23.2	U	23.5	U
2-Chlorophenol	95-57-8	390,000	1,200,000	---	400,000	---	µg/Kg	24	U	24.8	U	25.2	U	25.2	U	23	U	23.2	U	23.5	U
2-Methylnaphthalene	91-57-6	240,000	720,000	---	320,000	---	µg/Kg	24	U	289		25.2	U	25.2	U	23	U	23.2	U	23.5	U
2-Methylphenol	95-48-7	3,200,000	9,500,000	---	4,000,000	---	µg/Kg	12	U	12.4	U	12.6	U	12.6	U	11.5	U	11.6	U	11.8	U
2-Nitroaniline	88-74-4	630,000	1,900,000	---	800,000	---	µg/Kg	24	U	24.8	U	25.2	U	25.2	U	23	U	23.2	U	23.5	U
2-Nitrophenol	88-75-5	---	---	---	---	---	µg/Kg	95.9	U	99.2	U	101	U	101	U	92.1	U	92.9	U	94.1	U
3,3'-Dichlorobenzidine	91-94-1	1,200	120,000	---	---	2,200	µg/Kg	95.9	U	99.2	U	101	U	101	U	92.1	U	92.9	U	94.1	U
3 & 4-Methylphenol	84989-04-8	---	---	---	---	---	µg/Kg	48	U	49.6	U	50.4	U	50.4	U	46.1	U	46.5	U	47.1	U
3-Nitroaniline	99-09-2	---	---	---	---	---	µg/Kg	36	U	37.2	U	37.8	U	37.8	U	34.5	U	34.8	U	35.3	U
4,6-Dinitro-2-methylphenol	534-52-1	5,100	15,000	---	---	---	µg/Kg	360	U	372	U	378	U	378	U	345	U	348	U	353	U
4-Bromophenyl-phenylether	101-55-3	---	---	---	---	---	µg/Kg	36	U	37.2	U	37.8	U	37.8	U	34.5	U	34.8	U	35.3	U
4-Chloro-3-methylphenol	59-50-7	6,300,000	19,000,000	---	---	---	µg/Kg	24	U	24.8	U	25.2	U	25.2	U	23	U	23.2	U	23.5	U
4-Chloroaniline	106-47-8	2,700	270,000	---	320,000	5,000	µg/Kg	36	U	37.2	U	37.8	U	37.8	U	34.5	U	34.8	U	35.3	U
4-Chlorophenyl-phenylether	7005-72-3	---	---	---	---	---	µg/Kg	36	U	37.2	U	37.8	U	37.8	U	34.5	U	34.8	U	35.3	U
4-Nitroaniline	100-01-6	27,000	760,000	---	---	---	µg/Kg	48	U	49.6	U	50.4	U	50.4	U	46.1	U	46.5	U	47.1	U
4-Nitrophenol	100-02-7	---	---	---	---	---	µg/Kg	480	U	496	U	504	U	504	U	461	U	465	U	471	U
Acenaphthene	83-32-9	3,600,000	11,000,000	---	4,800,000	---	µg/Kg	24	U	24.8	U	25.2	U	25.2	U	23	U	23.2	U	23.5	U
Acenaphthylene	208-96-8	---	---	---	---	---	µg/Kg	24	U	24.8	U	25.2	U	25.2	U	23	U	23.2	U	23.5	U
Anthracene	120-12-7	18,000,000	54,000,000	---	24,000,000	---	µg/Kg	12	U	12.4	U	12.6	U	12.6	U	11.5	U	11.6	U	11.8	U
Azobenzene as 1,2-Diphenylhydrazine	103-33-3	5,600	560,000	---	---	9,100	µg/Kg	24	U	24.8	U	25.2	U	25.2	U	23	U	23.2	U	23.5	U
Benzidine	92-87-5	0.53	53	---	240,000	4.3	µg/Kg	2,800	U	2,890	U	2,940	U	2,940	U	2,690	U	2,710	U	2,750	U
Benzo(a)anthracene	56-55-3	1,100	110,000	---	---	1,370	µg/Kg	12	U	12.4	U	12.6	U	12.6	U	11.5	U	11.6	U	11.8	U
Benzo(a)pyrene	50-32-8	110	11,000	100	---	137	µg/Kg	95.9	U	99.2	U	101	U	101	U	92.1	U	92.9	U	94.1	U
Benzo(b)fluoranthene	205-99-2	1,100	110,000	---	---	1,370	µg/Kg	95.9	U	99.2	U	101	U	101	U	92.1	U	92.9	U	94.1	U
Benzo(g,h,i)perylene	191-24-2	---	---	---	---	---	µg/Kg	48	U	49.6	U	50.4	U	50.4	U	46.1	U	46.5	U	47.1	U
Benzo(k)fluoranthene	207-08-9	11,000	1,100,000	---	---	13,700	µg/Kg	48	U	49.6	U	50.4	U	50.4	U	46.1	U	46.5	U	47.1	U
Benzoic acid	65-85-0	250,000,000	760,000,000	---	320,000,000	---	µg/Kg	1,200	U	1,240	U	1,260	U	1,260	U	1,150	U	1,160	U	1,180	U
Benzyl alcohol	100-51-6	6,300,000	19,000,000	---	8,000,000	---	µg/Kg	24	U	24.8	U	25.2	U	25.2	U	23	U	23.2	U	23.5	U
Bis(2-chloroethoxy)methane	111-91-1	190,000	570,000	---	---	---	µg/Kg	24	U	24.8	U	25.2	U	25.2	U	23	U	23.2	U	23.5	U
Bis(2-chloroethyl)ether	111-44-4	230	23,000	---	---	910	µg/Kg	360	U	372	U	378	U	378	U	345	U	348	U	353	U
Bis(2-chloroisopropyl)ether	108-60-1	3,100,000	9,400,000	---	3,200,000	14,000	µg/Kg	480	U	496	U	504	U	504	U	461	U	465	U	471	U
Bis(2-ethylhexyl)phthalate	117-81-7	39,000	3,800,000	---	1,600,000	71,400	µg/Kg	16.2	JQ	74.4	U	75.7	U	75.6	U	69.1	U	69.7	U	70.6	U
Butyl benzyl phthalate	85-68-7	290,000	29,000,000	---	16,000,000	530,000	µg/Kg	71.9	U	74.4	U	75.7	U	75.6	U	69.1	U	69.7	U	70.6	U



Table B-3 2018 Landfill Test Pit Soil Samples May Creek Landfill 15753 SE Renton Issaquah Rd Renton, WA																							
Chemical Analysis	CAS Number	EPA RSL	EPA RML	WA MTCA Method A	WA MTCA Method B (Noncancer, Direct Contact)	WA MTCA Method B (Cancer, Direct Contact)	Date	11/27/2018		11/27/2018		11/27/2018		11/27/2018		11/28/2018		11/28/2018		11/28/2018		11/28/2018	
							EPA Sample Number	18111105		18111106		18111107		18111108		18111110		18111111		18111112		18111113	
							Sampling Depth (feet)	20 ft. bgs		24 ft. bgs		16.5 ft. bgs		25 ft. bgs		1.5 ft. bgs		15 ft. bgs		13 ft. bgs		11.5 ft. bgs	
							Field Sample Number	TP01		TP02		TP03		TP04		TP05		TP06		TP07		TP08	
							Units	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
Carbazole	86-74-8	--	--	--	--	--	µg/Kg	24	U	24.8	U	25.2	U	25.2	U	23	U	23.2	U	23.5	U	24.3	U
Chrysene	218-01-9	110,000	11,000,000	--	--	--	µg/Kg	24	U	24.8	U	25.2	U	25.2	U	23	U	23.2	U	23.5	U	88.1	
Dibenzo(a,h)anthracene	53-70-3	110	11,000	--	--	--	µg/Kg	95.9	U	99.2	U	101	U	101	U	92.1	U	92.9	U	94.1	U	97.2	U
Dibenzofuran	132-64-9	73,000	220,000	--	80,000	--	µg/Kg	24	U	24.8	U	25.2	U	25.2	U	23	U	23.2	U	23.5	U	24.3	U
Diethyl phthalate	84-66-2	51,000,000	150,000,000	--	64,000,000	--	µg/Kg	24	U	24.8	U	25.2	U	25.2	U	23	U	23.2	U	23.5	U	24.3	U
Dimethyl phthalate	131-11-3	--	--	--	--	--	µg/Kg	12	U	12.4	U	12.6	U	12.6	U	11.5	U	11.6	U	11.8	U	3.64	JQ
Di-n-butyl phthalate	84-74-2	6,300,000	19,000,000	--	8,000,000	--	µg/Kg	24	U	24.8	U	25.2	U	25.2	U	15	U	23.2	U	11.5	U	24.3	U
Di-n-octyl phthalate	117-84-0	630,000	1,900,000	--	800,000	--	µg/Kg	95.9	U	99.2	U	101	U	101	U	92.1	U	92.9	U	94.1	U	97.2	U
Fluoranthene	206-44-0	2,400,000	7,200,000	--	3,200,000	--	µg/Kg	24	U	24.8	U	25.2	U	25.2	U	23	U	23.2	U	23.5	U	14	JQ
Fluorene	86-73-7	2,400,000	7,200,000	--	3,200,000	--	µg/Kg	24	U	24.8	U	25.2	U	25.2	U	23	U	23.2	U	23.5	U	24.3	U
Hexachlorobenzene	118-74-1	210	21,000	--	64,000	630	µg/Kg	24	U	24.8	U	25.2	U	25.2	U	23	U	23.2	U	23.5	U	24.3	U
Hexachlorobutadiene	87-68-3	1,200	120,000	--	80,000	13,000	µg/Kg	48	U	49.6	U	50.4	U	50.4	U	46.1	U	46.5	U	47.1	U	48.6	U
Hexachlorocyclopentadiene	77-47-4	1,800	5,300	--	480,000	--	µg/Kg	480	U	496	U	504	U	504	U	461	U	465	U	471	U	486	U
Hexachloroethane	67-72-1	1,800	130,000	--	56,000	25,000	µg/Kg	48	U	49.6	U	50.4	U	50.4	U	46.1	U	46.5	U	47.1	U	48.6	U
Indeno(1,2,3-cd)pyrene	193-39-5	1,100	110,000	--	--	1,370	µg/Kg	95.9	U	99.2	U	101	U	101	U	92.1	U	92.9	U	94.1	U	47.7	JQ
Isophorone	78-59-1	570,000	38,000,000	--	16,000,000	1,100,000	µg/Kg	144	U	149	U	151	U	151	U	138	U	139	U	141	U	146	U
Naphthalene	91-20-3	3,800	380,000	5,000	1,600,000	--	µg/Kg	48	U	133		50.4	U	50.4	U	46.1	U	46.5	U	47.1	U	48.6	U
Nitrobenzene	98-95-3	5,100	380,000	--	160,000	--	µg/Kg	48	U	49.6	U	50.4	U	50.4	U	46.1	U	46.5	U	47.1	U	48.6	U
N-Nitrosodimethylamine	62-75-9	2	200	--	640	--	µg/Kg	48	U	49.6	U	50.4	U	50.4	U	46.1	U	46.5	U	47.1	U	48.6	U
N-Nitrosodi-n-propylamine	621-64-7	78	7,800	--	--	--	µg/Kg	71.9	U	74.4	U	75.7	U	75.6	U	69.1	U	69.7	U	70.6	U	72.9	U
N-Nitrosodiphenylamine	86-30-6	110,000	11,000,000	--	--	--	µg/Kg	24	U	24.8	U	25.2	U	25.2	U	23	U	23.2	U	23.5	U	24.3	U
Pentachlorophenol	87-86-5	1,000	100,000	--	400,000	2,500	µg/Kg	360	U	372	U	378	U	378	U	345	U	348	U	353	U	364	U
Phenanthrene	85-01-8	--	--	--	--	--	µg/Kg	6.6	JQ	8.37	JQ	25.2	U	25.2	U	23	U	23.2	U	23.5	U	24.3	U
Phenol	108-95-2	19,000,000	57,000,000	--	24,000,000	--	µg/Kg	48	U	49.6	U	50.4	U	50.4	U	46.1	U	46.5	U	47.1	U	48.6	U
Pyrene	129-00-0	1,800,000	5,400,000	--	2,400,000	--	µg/Kg	7.19	JQ	12.7		12.6	U	12.6	U	6.91	JQ	11.6	U	11.8	U	28.6	
TAL Metals																							
Aluminum	7429-90-5	77,000	230,000	--	80,000	--	mg/Kg	15,600		19,200		19,300		25,700		25,500		17,500		17,500		19,500	
Antimony	7440-36-0	31	94	--	32	--	mg/Kg	1.36	UJL	1.46	UJL	1.51	UJL	1.52	UJL	1.43	UJL	1.36	UJL	1.41	UJL	1.45	UJL
Arsenic	7440-38-2	0.68	68	20	24	0.67	mg/Kg	5	JQ	14.6	U	15.1	U	6.18	JQ	8.5	JQ	6.71	JQ	9.32	JQ	6.46	JQ
Barium	7440-39-3	15,000	46,000	--	16,000	--	mg/Kg	52		119		80.8		55.8		81.1		84.8		104		103	
Beryllium	7440-41-7	160	470	--	160	--	mg/Kg	0.136	U	0.146	U	0.151	U	0.152	U	0.143	U	0.136	U	0.141	U	0.145	U
Cadmium	7440-43-9	71	210	2	--	--	mg/Kg	1.36	U	1.46	U	1.51	U	1.52	U	1.43	U	1.36	U	1.41	U	1.45	U
Calcium	7440-70-2	--	--	--	--	--	mg/Kg	3,220		4,250		2,910		3,530		4,390		2,570		2,390		3,030	
Chromium	7440-47-3	--	--	2,000	--	--	mg/Kg	22.6		54.6		46.1		28.8		30		31.2		34.9		25.8	
Cobalt	7440-48-4	23	70	--	--	--	mg/Kg	6.15		9.42		7.34		7.58		8.3		7.21		8.02		6.12	
Copper	7440-50-8	3,100	9,400	--	3,200	--	mg/Kg	18.7		19		19.6		17.7		30		20.2		26.2		17.4	
Iron	7439-89-6	55,000	160,000	--	56,000	--	mg/Kg	16,900		25,100		16,200		18,300		18,600		18,400		18,800		15,500	
Lead	7439-92-1	400	400	250	--	--	mg/Kg	8.18	JQ	14.6	U	15.1	U	15.2	U	14.3	U	13.6	U	14.1	U	14.5	U
Magnesium	7439-95-4	--	--	--	--	--	mg/Kg	3,090		6,210		6,640		3,770		4,070		4,820		5,540		3,630	
Manganese	7439-96-5	--	--	--	11,200	--	mg/Kg	204		254	JL	175	JL	245	JL	268	JL	221	JL	276	JL	186	JL
Mercury	7439-97-6	11	33	2	--	--	mg/Kg	0.033	JQ	0.069	JQ	0.037	JQ	0.074		0.022	JQ	0.066	U	0.067	U	0.074	U
Nickel	7440-02-0	1,500	4,600	--	1,600	--	mg/Kg	17.5		34.2		47.9		22.1		23.5		21.8					

Table B-3 2018 Landfill Test Pit Soil Samples May Creek Landfill 15753 SE Renton Issaquah Rd Renton, WA																							
Chemical Analysis	CAS Number	EPA RSL	EPA RML	WA MTCA Method A	WA MTCA Method B (Noncancer, Direct Contact)	WA MTCA Method B (Cancer, Direct Contact)	Date	11/27/2018		11/27/2018		11/27/2018		11/27/2018		11/28/2018		11/28/2018		11/28/2018		11/28/2018	
							EPA Sample Number	18111105		18111106		18111107		18111108		18111110		18111111		18111112		18111113	
							Sampling Depth (feet)	20 ft. bgs		24 ft. bgs		16.5 ft. bgs		25 ft. bgs		1.5 ft. bgs		15 ft. bgs		13 ft. bgs		11.5 ft. bgs	
							Field Sample Number	TP01		TP02		TP03		TP04		TP05		TP06		TP07		TP08	
							Units	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
PCBs																							
Aroclor 1016	12674-11-2	4.1	12	---	5.6	14	mg/Kg	0.22	U	0.234	U	0.243	U	0.244	U	0.225	U	0.22	U	0.225	U	0.236	U
Aroclor 1221	11104-28-2	0.2	20	---	---	---	mg/Kg	0.55	U	0.586	U	0.608	U	0.609	U	0.562	U	0.55	U	0.562	U	0.591	U
Aroclor 1232	11141-16-5	0.17	17	---	---	---	mg/Kg	0.22	U	0.234	U	0.243	U	0.244	U	0.225	U	0.22	U	0.225	U	0.236	U
Aroclor 1242	53469-21-9	0.23	23	---	---	---	mg/Kg	0.22	U	0.234	U	0.243	U	0.244	U	0.225	U	0.22	U	0.225	U	0.236	U
Aroclor 1248	12672-29-6	0.23	23	---	---	---	mg/Kg	0.22	U	0.234	U	0.243	U	0.244	U	0.225	U	0.22	U	0.225	U	0.236	U
Aroclor 1254	11097-69-1	0.24	3.5	---	1.6	0.5	mg/Kg	0.22	U	0.234	U	0.243	U	0.244	U	0.225	U	0.22	U	0.225	U	0.236	U
Aroclor 1260	11096-82-5	0.24	24	---	---	0.5	mg/Kg	0.22	U	0.234	U	0.243	U	0.244	U	0.225	U	0.22	U	0.225	U	0.236	U
Total PCB	1336-36-3	0.23	23	1	---	0.5	mg/Kg	0.55	U	0.586	U	0.608	U	0.609	U	0.562	U	0.55	U	0.562	U	0.591	U
Pesticides																							
4,4'-DDD	72-54-8	1,900	5,700	---	---	4,200	µg/Kg	4.4	U	4.69	U	4.86	U	4.87	U	4.49	U	4.4	U	4.49	U	4.73	U
4,4'-DDE	72-55-9	2,000	70,000	---	---	2,900	µg/Kg	4.4	U	4.69	U	4.86	U	4.87	U	4.49	U	4.4	U	4.49	U	4.73	U
4,4'-DDT	50-29-3	1,900	110,000	3,000	40,000	2,900	µg/Kg	4.4	U	4.69	U	4.86	U	4.87	U	4.49	U	4.4	U	4.49	U	4.73	U
Aldrin	309-00-2	39	3,900	---	2,400	59	µg/Kg	4.4	U	4.69	U	4.86	U	4.87	U	4.49	U	4.4	U	4.49	U	4.73	U
alpha-BHC	319-84-6	86	8,600	---	640,000	160	µg/Kg	4.4	U	4.69	U	4.86	U	4.87	U	4.49	U	4.4	U	4.49	U	4.73	U
alpha-Chlordane	5103-71-9	---	---	---	---	---	µg/Kg	4.4	U	4.69	U	4.86	U	4.87	U	4.49	U	4.4	U	4.49	U	4.73	U
beta-BHC	319-85-7	300	30,000	---	---	560	µg/Kg	8.8	U	9.38	U	9.72	U	9.75	U	8.98	U	8.8	U	8.99	U	9.45	U
delta-BHC	319-86-8	---	---	---	---	---	µg/Kg	8.8	U	9.38	U	9.72	U	9.75	U	8.98	U	8.8	U	8.99	U	9.45	U
Dieldrin	60-57-1	34	3,400	---	4,000	63	µg/Kg	4.4	U	4.69	U	4.86	U	4.87	U	4.49	U	4.4	U	4.49	U	4.73	U
Endosulfan I	959-98-8	---	---	---	---	---	µg/Kg	4.4	U	4.69	U	4.86	U	4.87	U	4.49	U	4.4	U	4.49	U	4.73	U
Endosulfan II	33213-65-9	---	---	---	---	---	µg/Kg	4.4	U	4.69	U	4.86	U	4.87	U	4.49	U	4.4	U	4.49	U	4.73	U
Endosulfan sulfate	1031-07-8	---	---	---	---	---	µg/Kg	8.8	U	9.38	U	9.72	U	9.75	U	8.98	U	8.8	U	8.99	U	9.45	U
Endrin	72-20-8	19,000	57,000	---	24,000	---	µg/Kg	4.4	U	4.69	U	4.86	U	4.87	U	4.49	U	4.4	U	4.49	U	4.73	U
Endrin aldehyde	7421-93-4	---	---	---	---	---	µg/Kg	8.8	U	9.38	U	9.72	U	9.75	U	8.98	U	8.8	U	8.99	U	9.45	U
Endrin ketone	53494-70-5	---	---	---	---	---	µg/Kg	8.8	U	9.38	U	9.72	U	9.75	U	8.98	U	8.8	U	8.99	U	9.45	U
gamma-BHC	58-89-9	570	57,000	10	24,000	910	µg/Kg	4.4	U	4.69	U	4.86	U	4.87	U	4.49	U	4.4	U	4.49	U	4.73	U
gamma-Chlordane	5566-34-7	---	---	---	---	---	µg/Kg	4.4	U	4.69	U	4.86	U	4.87	U	4.49	U	4.4	U	4.49	U	4.73	U
Heptachlor	76-44-8	130	13,000	---	40,000	220	µg/Kg	4.4	U	4.69	U	4.86	U	4.87	U	4.49	U	4.4	U	4.49	U	4.73	U
Heptachlor epoxide	1024-57-3	70	3,100	---	1,040	110	µg/Kg	4.4	U	4.69	U	4.86	U	4.87	U	4.49	U	4.4	U	4.49	U	4.73	U
Methoxychlor	72-43-5	320,000	950,000	---	400,000	---	µg/Kg	4.4	U	4.69	U	4.86	U	4.87	U	4.49	U	4.4	U	4.49	U	4.73	U
Toxaphene	8001-35-2	490	17,000	---	---	910	µg/Kg	550	U	586	U	608	U	609	U	562	U	550	U	562	U	591	U
Dioxins																							
2,3,7,8-TCDD	1746-01-6	4.8	150	---	93	12.8	pg/g	---	---	0.278	U	---	---	0.457	U	---	---	---	---	0.236	U	0.281	U
1,2,3,7,8-PeCDD	40321-76-4	---	---	---	---	---	pg/g	---	---	0.24	U	---	---	0.341	U	---	---	---	---	0.2	U	0.423	U
1,2,3,4,7,8-HxCDD	39227-28-6	---	---	---	---	---	pg/g	---	---	0.702	U	---	---	0.673	U	---	---	---	---	0.426	U	1.19	U
1,2,3,6,7,8-HxCDD	57653-85-7	---	---	---	---	---	pg/g	---	---	0.668	JK	---	---	0.568	U	---	---	---	---	0.361	U	1.31	JQ
1,2,3,7,8,9-HxCDD	19408-74-3	---	---	---	---	161	pg/g	---	---	0.668	U	---	---	0.641	U	---	---	---	---	0.406	U	1.13	U
1,2,3,4,6,7,8-HpCDD	35822-46-9	---	---	---	---	---	pg/g	---	---	14.1		---	---	5.34		---	---	---	---	1.16	JQ	41.6	
1,2,3,4,6,7,8,9-OCDD	3268-87-9	---	---	---	---	---	pg/g	---	---	184		---	---	59.8		---	---	---	---	13.7	U	461	
2,3,7,8-TCDF	51207-31-9	---	---	---	---	---	pg/g	---	---	0.526	U	---	---	0.689	U	---	---	---	---	0.369	U	0.566	U
1,2,3,7,8-PeCDF	57117-41-6	---	---	---	---	---	pg/g	---	---	0.406	U	---	---	0.441	U	---	---	---	---	0.234	U	0.352	U
2,3,4,7,8-PeCDF	57117-31-4	---	---	---	---	---	pg/g	---	---	0.402	JK	---	---	0.393	U	---	---	---	---	0.21	U	0.313	U
1,2,3,4,7,8-HxCDF	70648-26-9	---	---	---	---	---	pg/g	---	---	0.499	U	---	---	0.508	U	---	---	---	---	0.438	U	0.708	JQ
1,2,3,6,7,8-HxCDF	57117-44-9	---	---	---	---	---	pg/g	---	---	0.434	U	---	---	0.441	U	---	---	---	---	0.381	U	0.497	JK
2,3,4,6,7,8-HxCDF	60851-34-5	---	---	---	---	---	pg/g	---	---	0.485	U	---	---	0.494	U	---	---	---	---	0.424	U	0.462	U
1,2,3,7,8,9-HxCDF	72918-21-9	---	---	---	---	---	pg/g	---	---	0.615	U	---	---	0.625	U	---	---	---	---	0.537	U	0.586	U
1,2,3,4,6,7,8-HpCDF	67562-39-4	---	---	---	---	---	pg/g	---	---	3.88	U	---	---	1.01	U	---	---	---	---	0.706	U		

Table B-3 2018 Landfill Test Pit Soil Samples May Creek Landfill 15753 SE Renton Issaquah Rd Renton, WA																					
Chemical Analysis	CAS Number	EPA RSL	EPA RML	WA MTCA Method A	WA MTCA Method B (Noncancer, Direct Contact)	WA MTCA Method B (Cancer, Direct Contact)	Date	11/27/2018		11/27/2018		11/27/2018		11/27/2018		11/28/2018		11/28/2018		11/28/2018	
							EPA Sample Number	18111105		18111106		18111107		18111108		18111110		18111111		18111112	
							Sampling Depth (feet)	20 ft. bgs		24 ft. bgs		16.5 ft. bgs		25 ft. bgs		1.5 ft. bgs		15 ft. bgs		13 ft. bgs	
							Field Sample Number	TP01		TP02		TP03		TP04		TP05		TP06		TP07	
							Units	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
Total Tetrachlorodibenzofuran	30402-14-3	---	---	---	---	---	pg/g	---	---	0.694	J	---	---	0.689	U	---	---	---	---	0.369	U
Total Pentachlorodibenzofuran	30402-15-4	---	---	---	---	---	pg/g	---	---	3.71	J	---	---	0.272	U	---	---	---	---	0.146	U
Total Hexachlorodibenzofuran	55684-94-1	---	---	---	---	---	pg/g	---	---	5.22		---	---	0.842	J	---	---	---	---	0.381	U
Total Heptachlorodibenzofuran	38998-75-3	---	---	---	---	---	pg/g	---	---	13.1	J	---	---	1.32	J	---	---	---	---	0.49	J
TEQ WHO2005 ND=0	3333-30-0	4.8	150	---	93	12.8	pg/g	---	---	0.201		---	---	0.0714		---	---	---	---	0.012	
TEQ WHO2005 ND=0.5	3333-30-1	4.8	150	---	93	12.8	pg/g	---	---	0.769		---	---	0.776		---	---	---	---	0.44	

Notes: (1) MTCA cleanup levels for total petroleum hydrocarbons (TPH) apply to the NWTPH-Gx and NWTPH-Dx analyses. They are presented for the NWTPH-HCID results for comparison purposes only.

426 = Detected results are bolded.

1,180 = Yellow highlights indicate results that exceed listed screening levels.

--- = Not Applicable

µg/kg = micrograms per kilogram

CAS = Chemical Abstracts Service

Dioxins = Dioxins/Furans, SW846 Method 8290A

EPA RML = Environmental Protection Agency (EPA) Removal Management Levels (RML), 40 CFR Part 300, November 2018

EPA RSL = Environmental Protection Agency (EPA) Regional Screening Levels (RSL), 40 CFR Part 300, November 2018

H = The sample result is biased high.

J = The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

K = The bias of the sample is not known.

L = The sample result is biased low.

mg/Kg = milligrams per kilogram

NWTPH-Dx = Northwest Total Petroleum Hydrocarbons - Extended Diesel Range (Semi-volatile Petroleum Products)

NWTPH-HCID = Northwest Total Petroleum Hydrocarbons - Hydrocarbon Identification

Pesticides = Organochlorine Pesticides, EPA Method 8081B by GC/ECD

PCBs = Polychlorinated Biphenyls (PCBs), EPA Method 8082A by GC/ECD

Q = Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.

Qual = Qualifier

SVOCs = Semi-Volatile Organic Compounds, EPA Method 8270D by GC/MS

TAL Metals = Target Analyte List Metals, EPA Method 6010C (ICP-AES) and 7471 (CVAA)

U = The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.

VOCs = Volatile Organic Compounds, EPA Method 8260C by GC/MS

WA MTCA Method A = Washington State (WA) Model Toxics Control Act (MTCA) Cleanup Regulation Method A (unrestricted land use) value from the Cleanup and Risk Calculations tables (CLARC), chapter 173-340 WAC, August 2015

WA MTCA Method B = Washington State (WA) Model Toxics Control Act (MTCA) Cleanup Regulation Method B (unrestricted land use) value from the Cleanup and Risk Calculations tables (CLARC), chapter 173-340 WAC, August 2015



Table B-4																																			
2018 Workshop Area Soil Samples																																			
May Creek Landfill																																			
15753 SE Renton Issaquah Rd																																			
Renton, WA																																			
Chemical Analysis	CAS Number	EPA RSL	EPA RML	WA MTCA Method A	WA MTCA Method B (Noncancer, Direct Contact)	WA MTCA Method B (Cancer, Direct Contact)	Date	12/10/2018		12/10/2018		12/10/2018		12/10/2018		12/10/2018		12/12/2018		12/12/2018		12/12/2018		12/12/2018		12/12/2018		12/12/2018		12/12/2018					
							Sampling Depth (inches)	0 - 6		0 - 6		0 - 6		0 - 6		0 - 6		12 - 24		0 - 6		12 - 24		0 - 6		12 - 24		0 - 6		12 - 24		0 - 6		12 - 24	
							EPA Sample Number	18111116		18111117		18111118		18111119		18111120		18111128		18111129		18111130		18111131		18111132		18111133		18111134					
							Field Sample Number	W101SS01		W102SS01		W103SS01		W104SS01		W201SS01		W204SS01		W201SB12		W202SS01		W202SB12		W203SS01		W203SB12		W299SB12					
							Units	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual				
VOCs																																			
1,1,1,2-Tetrachloroethane	630-20-6	2,000	200,000	---	2,400,000	38,000	µg/Kg	44	U	48	U	57	U	52	U	54	U	40	UJL	40	UJL	51	UJL	49	UJL	68	UJL	61	UJL	65	UJL				
1,1,1-Trichloroethane	71-55-6	8,100,000	24,000,000	2,000	160,000,000	---	µg/Kg	44	U	48	U	57	U	52	U	54	U	40	UJL	40	UJL	51	UJL	49	UJL	68	UJL	61	UJL	65	UJL				
1,1,2,2-Tetrachloroethane	79-34-5	600	60,000	---	1,600,000	5,000	µg/Kg	22	U	24	U	29	U	26	U	27	U	20	UJL	20	UJL	25	UJL	24	UJL	34	UJL	30	UJL	32	UJL				
1,1,2-Trichloroethane	79-00-5	1,100	4,500	---	320,000	18,000	µg/Kg	22	U	24	U	29	U	26	U	27	U	20	UJL	20	UJL	25	UJL	24	UJL	34	UJL	30	UJL	32	UJL				
1,1-Dichloroethane	75-34-3	3,600	360,000	---	16,000,000	180,000	µg/Kg	44	U	48	U	57	U	52	U	54	U	40	UJL	40	UJL	51	UJL	49	UJL	68	UJL	61	UJL	65	UJL				
1,1-Dichloroethene	75-35-4	230,000	680,000	---	4,000,000	---	µg/Kg	44	U	48	U	57	U	52	U	54	U	40	UJL	40	UJL	51	UJL	49	UJL	68	UJL	61	UJL	65	UJL				
1,1-Dichloropropene	563-58-6	---	---	---	---	---	µg/Kg	44	U	48	U	57	U	52	U	54	U	40	UJL	40	UJL	51	UJL	49	UJL	68	UJL	61	UJL	65	UJL				
1,2,3-Trichlorobenzene	87-61-6	63,000	190,000	---	---	---	µg/Kg	160	U	180	U	220	U	190	U	200	U	150	UJL	150	UJL	190	UJL	180	UJL	260	UJL	230	UJL	240	UJL				
1,2,3-Trichloropropane	96-18-4	5.1	510	---	320,000	---	µg/Kg	44	U	48	U	57	U	52	U	54	U	40	UJL	40	UJL	51	UJL	49	UJL	68	UJL	61	UJL	65	UJL				
1,2,4-Trichlorobenzene	120-82-1	24,000	170,000	---	800,000	34,000	µg/Kg	65	UJL	72	UJL	86	UJL	77	UJL	80	UJL	34	JQ	59	UJL	76	UJL	73	UJL	100	UJL	91	UJL	97	UJL				
1,2,4-Trimethylbenzene	95-63-6	300,000	910,000	---	---	---	µg/Kg	44	U	48	U	57	U	52	U	45	JQ	40	UJL	40	UJL	51	UJL	49	UJL	380		61	UJL	65	UJL				
1,2-Dibromo-3-Chloropropane	96-12-8	5.3	530	---	16,000	1,300	µg/Kg	270	U	300	U	360	U	320	U	340	U	250	UJL	250	UJL	320	UJL	310	UJL	430	UJL	380	UJL	400	UJL				
1,2-Dibromoethane	106-93-4	36	3,600	5	720,000	500	µg/Kg	22	U	24	U	29	U	26	U	27	U	20	UJL	20	UJL	25	UJL	24	UJL	34	UJL	30	UJL	32	UJL				
1,2-Dichlorobenzene	95-50-1	1,800,000	5,400,000	---	7,200,000	---	µg/Kg	44	U	48	U	57	U	52	U	54	U	40	UJL	40	UJL	51	UJL	49	UJL	68	UJL	61	UJL	65	UJL				
1,2-Dichloroethane	107-06-2	460	46,000	---	480,000	11,000	µg/Kg	22	U	24	U	29	U	26	U	27	U	20	UJL	20	UJL	25	UJL	24	UJL	34	UJL	30	UJL	32	UJL				
1,2-Dichloropropane	78-87-5	2,500	47,000	---	7,200,000	27,000	µg/Kg	22	U	24	U	29	U	26	U	27	U	20	UJL	20	UJL	25	UJL	24	UJL	34	UJL	30	UJL	32	UJL				
1,3,5-Trimethylbenzene	108-67-8	270,000	810,000	---	800,000	---	µg/Kg	44	U	48	U	57	U	52	U	19	JQ	40	UJL	40	UJL	51	UJL	49	UJL	120		61	UJL	65	UJL				
1,3-Dichlorobenzene	541-73-1	---	---	---	---	---	µg/Kg	65	U	72	U	86	U	77	U	80	U	59	UJL	59	UJL	76	UJL	73	UJL	100	UJL	91	UJL	97	UJL				
1,3-Dichloropropane	142-28-9	1,600,000	4,700,000	---	---	---	µg/Kg	65	U	72	U	86	U	77	U	80	U	59	UJL	59	UJL	76	UJL	73	UJL	100	UJL	91	UJL	97	UJL				
1,4-Dichlorobenzene	106-46-7	2,600	260,000	---	5,600,000	190,000	µg/Kg	65	U	72	U	86	U	77	U	80	U	59	UJL	59	UJL	76	UJL	73	UJL	100	UJL	91	UJL	97	UJL				
2,2-Dichloropropane	594-20-7	---	---	---	---	---	µg/Kg	44	U	48	U	57	U	52	U	54	U	40	UJL	40	UJL	51	UJL	49	UJL	68	UJL	61	UJL	65	UJL				
2-Chlorotoluene	95-49-8	1,600,000	4,700,000	---	1,600,000	---	µg/Kg	44	U	48	U	57	U	52	U	54	U	40	UJL	40	UJL	51	UJL	49	UJL	68	UJL	61	UJL	65	UJL				
4-Chlorotoluene	106-43-4	1,600,000	4,700,000	---	---	---	µg/Kg	44	U	48	U	57	U	52	U	54	U	40	UJL	40	UJL	51	UJL	49	UJL	68	UJL	61	UJL	65	UJL				
4-Isopropyltoluene	99-87-6	---	---	---	---	---	µg/Kg	12	JQ	48	U	57	U	52	U	54	U	40	UJL	40	UJL	51	UJL	49	UJL	66	JQ	61	UJL	65	UJL				
Benzene	71-43-2	1,200	120,000	30	320,000	18,000	µg/Kg	33	U	36	U	43	U	39	U	14	JQ	30	UJL	30	UJL	38	UJL	37	UJL	13	JQ	45	UJL	49	UJL				
Bromobenzene	108-86-1	290,000	860,000	---	---	---	µg/Kg	110	U	120	U	140	U	130	U	130	U	99	UJL	99	UJL	130	UJL	120	UJL	170	UJL	150	UJL	160	UJL				
Bromochloromethane	74-97-5	150,000	450,000	---	---	---	µg/Kg	44	U	48	U	57	U	52	U	54	U	40	UJL	40	UJL	51	UJL	49	UJL	68	UJL	61	UJL	65	UJL				
Bromodichloromethane	75-27-4	290	29,0																																

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Chemical Analysis	CAS Number	EPA RSL	EPA RML	WA MTCA Method A	WA MTCA Method B (Noncancer, Direct Contact)	WA MTCA Method B (Cancer, Direct Contact)	Date	12/10/2018		12/10/2018		12/10/2018		12/10/2018		12/10/2018		12/12/2018		12/12/2018		12/12/2018		12/12/2018		12/12/2018		12/12/2018			
							Sampling Depth (inches)	0 - 6		0 - 6		0 - 6		0 - 6		0 - 6		12 - 24		0 - 6		12 - 24		0 - 6		12 - 24		12 - 24			
							EPA Sample Number	18111116		18111117		18111118		18111119		18111120		18111128		18111129		18111130		18111131		18111132		18111133		18111134	
							Field Sample Number	W101SS01		W102SS01		W103SS01		W104SS01		W201SS01		W204SS01		W201SB12		W202SS01		W202SB12		W203SS01		W203SB12		W299SB12	
							Units	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
2,4,6-Trichlorophenol	88-06-2	49,000	190,000	---	80,000	91,000	µg/Kg	25.7	U	25.6	U	20.3	U	190	U	178	U	552	U	111	U	583	U	545	U	575	U	611	U		
2,4-Dichlorophenol	120-83-2	190,000	570,000	---	240,000	---	µg/Kg	25.7	U	25.6	U	20.3	U	190	U	178	U	552	U	55.4	U	583	U	545	U	575	U	611	U		
2,4-Dimethylphenol	105-67-9	1,300,000	3,800,000	---	1,600,000	---	µg/Kg	25.7	U	25.6	U	20.3	U	190	U	178	U	552	U	111	U	583	U	545	U	575	U	611	U		
2,4-Dinitrophenol	51-28-5	130,000	380,000	---	160,000	---	µg/Kg	772	U	768	U	610	U	5,710	U	5,340	U	16,600	U	3,320	U	17,500	U	16,400	U	17200	U	18300	U		
2,4-Dinitrotoluene	121-14-2	1,700	170,000	---	160,000	3,200	µg/Kg	154	U	154	U	122	U	1,140	U	1070	U	3,310	U	55.4	U	3,500	U	3,270	U	3450	U	3660	U		
2,6-Dinitrotoluene	606-20-2	360	36,000	---	24,000	670	µg/Kg	103	U	102	U	81.4	U	762	U	712	U	2,210	U	443	U	2,330	U	2,180	U	2300	U	2440	U		
2-Chloronaphthalene	91-58-7	4,800,000	14,000,000	---	6,400,000	---	µg/Kg	25.7	U	25.6	U	20.3	U	190	U	178	U	552	U	111	U	583	U	545	U	575	U	611	U		
2-Chlorophenol	95-57-8	390,000	1,200,000	---	400,000	---	µg/Kg	25.7	U	25.6	U	20.3	U	190	U	178	U	552	U	55.4	U	583	U	545	U	575	U	611	U		
2-Methylnaphthalene	91-57-6	240,000	720,000	---	320,000	---	µg/Kg	25.7	U	25.6	U	20.3	U	190	U	40.1	JQ	552	U	111	U	583	U	545	U	575	U	611	U		
2-Methylphenol	95-48-7	3,200,000	9,500,000	---	4,000,000	---	µg/Kg	12.9	U	12.8	U	10.2	U	95.2	U	89	U	276	U	55.4	U	292	U	273	U	287	U	305	U		
2-Nitroaniline	88-74-4	630,000	1,900,000	---	800,000	---	µg/Kg	25.7	U	25.6	U	20.3	U	190	U	178	U	552	U	111	U	583	U	545	U	575	U	611	U		
2-Nitrophenol	88-75-5	---	---	---	---	---	µg/Kg	103	U	102	U	81.4	U	762	U	712	U	2,210	U	443	U	2,330	U	2,180	U	2,300	U	2,440	U		
3 & 4-Methylphenol	84989-04-8	---	---	---	---	2,200	µg/Kg	51.5	U	51.2	U	40.7	U	381	U	356	U	1,100	U	222	U	1,170	U	1,090	U	1,150	U	1,220	U		
3,3'-Dichlorobenzidine	91-94-1	1,200	120,000	---	---	---	µg/Kg	515	U	512	U	407	U	3,810	U	3560	U	2,210	U	443	U	2,330	U	2,180	U	2,300	U	2,440	U		
3-Nitroaniline	99-09-2	---	---	---	---	---	µg/Kg	38.6	U	38.4	U	30.5	U	286	U	267	U	829	U	166	U	875	U	818	U	862	U	916	U		
4,6-Dinitro-2-methylphenol	534-52-1	5,100	15,000	---	---	---	µg/Kg	386	U	384	U	305	U	2,860	U	2,670	U	8,290	U	1,660	U	8,750	U	8,180	U	8,620	U	9,160	U		
4-Bromophenyl-phenylether	101-55-3	---	---	---	---	---	µg/Kg	38.6	U	38.4	U	30.5	U	286	U	267	U	829	U	166	U	875	U	818	U	862	U	916	U		
4-Chloro-3-methylphenol	59-50-7	6,300,000	19,000,000	---	---	---	µg/Kg	25.7	U	25.6	U	20.3	U	190	U	178	U	552	U	55.4	U	583	U	545	U	575	U	611	U		
4-Chloroaniline	106-47-8	2,700	270,000	---	320,000	5,000	µg/Kg	38.6	U	38.4	U	153	U	286	U	267	U	829	U	166	U	875	U	818	U	862	U	916	U		
4-Chlorophenyl-phenylether	7005-72-3	---	---	---	---	---	µg/Kg	38.6	U	38.4	U	30.5	U	286	U	267	U	829	U	166	U	875	U	818	U	862	U	916	U		
4-Nitroaniline	100-01-6	27,000	760,000	---	---	---	µg/Kg	51.5	U	51.2	U	40.7	U	381	U	256	JQ	1,100	U	222	U	1,170	U	1,090	U	1,150	U	1,220	U		
4-Nitrophenol	100-02-7	---	---	---	---	---	µg/Kg	515	U	512	U	407	U	3,810	U	3,560	U	11,000	U	2,220	U	11,700	U	10,900	U	11,500	U	12,200	U		
Acenaphthene	83-32-9	3,600,000	11,000,000	---	4,800,000	---	µg/Kg	25.7	U	25.6	U	20.3	U	190	U	178	U	552	U	111	U	583	U	545	U	575	U	611	U		
Acenaphthylene	208-96-8	---	---	---	---	---	µg/Kg	25.7	U	25.6	U	20.3	U	190	U	178	U	552	U	111	U	583	U	545	U	575	U	611	U		
Anthracene	120-12-7	18,000,000	54,000,000	---	24,000,000	---	µg/Kg	12.9	U	12.8	U	10.2	U	95.2	U	89	U	276	U	55.4	U	292	U	273	U	287	U	305	U		
Azobenzene as 1,2-Diphenylhydrazine	103-33-3	5,600	560,000	---	---	9,100	µg/Kg	25.7	U	25.6	U	20.3	U	190	U	178	U	552	U	111	U	583	U	545	U	575	U	611	U		
Benzidine	92-87-5	0.53	53	---	240,000	4.3	µg/Kg	3,000	U	2,990	U	2,370	U	22,200	U	20,800	U	64,400	U	12,900	U	68,000	U	63,600	U	67,000	U	71,200	U		
Benzo(a)anthracene	56-55-3	1,100	110,000	---	---	1,370	µg/Kg	64.4	U	12.8	U	50.9	U	476	U	445	U	276	U	55.4	U	292	U	273	U	287	U	305	U		
Benzo(a)pyrene	50-32-8	110	11,000	100	---	137	µg/Kg	2,570	U	2,560	U	2,030	U	3,810	UJK	3,560	UJK	2,210	U	443	U	2,330									

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Chemical Analysis	CAS Number	EPA RSL	EPA RML	WA MTCA Method A	WA MTCA Method B (Noncancer, Direct Contact)	WA MTCA Method B (Cancer, Direct Contact)	Date		12/10/2018		12/10/2018		12/10/2018		12/10/2018		12/10/2018		12/12/2018		12/12/2018		12/12/2018		12/12/2018		12/12/2018		12/12/2018		12/12/2018	
							Sampling Depth (inches)	0 - 6		0 - 6		0 - 6		0 - 6		0 - 6		0 - 6		12 - 24		0 - 6		12 - 24		0 - 6		12 - 24				
							EPA Sample Number	18111116		18111117		18111118		18111119		18111120		18111128		18111129		18111130		18111131		18111132		18111133		18111134		
							Field Sample Number	W101SS01		W102SS01		W103SS01		W104SS01		W201SS01		W204SS01		W201SB12		W202SS01		W202SB12		W203SS01		W203SB12		W299SB12		
							Units	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result
TAL Metals																																
Aluminum	7429-90-5	77,000	230,000	---	80,000	---	mg/Kg	17,600		13,400		19,400		19,800		12,200		4,330	JL	15,000	JL	10,800	JL	12,900	JL	10,100	JL	20,400	JL	17,800	JL	
Antimony	7440-36-0	31	94	---	32	---	mg/Kg	1.44	UJK	1.47	UJK	1.53	UJK	1.39	UJK	1.38	UJK	1.29	UJL	1.34	UJL	1.44	UJL	1.35	UJL	1.3	UJL	1.46	UJL	1.44	UJL	
Arsenic	7440-38-2	0.68	68	20	24	0.67	mg/Kg	8.06	JQ	10.9	JQ	8.15	JQ	6.87	JQ	8.93	JQ	7.59		6.6		9.55		8.34		8.78		8.28		9.37		
Barium	7440-39-3	15,000	46,000	---	16,000	---	mg/Kg	71.3	JH	74	JH	79.1	JH	58.5	JH	119		40.6	JH	56.4	JH	51.3	JH	76.7	JH	49.4	JH	86.4	JH	71.8		
Beryllium	7440-41-7	160	470	---	160	---	mg/Kg	0.144	UJL	1.47	UJL	0.153	UJL	0.139	UJL	0.138	UJL	1.29	UJL	1.34	UJL	1.44	UJL	1.35	UJL	1.3	UJL	1.46	UJL	1.44	UJL	
Cadmium	7440-43-9	71	210	2	---	---	mg/Kg	0.699		3.11		0.561		0.637		69.9		1.94		0.319		1.48		0.376		0.533		0.347		0.293		
Calcium	7440-70-2	---	---	---	---	---	mg/Kg	3,590	JL	4,020	JL	3,100	JL	3,940	JL	5,650	JL	3,160	JL	4,220	JL	5,680	JL	8,380	JL	5,180		3,330	JL	2,800	JL	
Chromium	7440-47-3	---	---	2,000	---	---	mg/Kg	27.5		58.5		30		19.6		45.5		17.8		21.7		31.7		27.5		22.3		25.5		22.6		
Cobalt	7440-48-4	23	70	---	---	---	mg/Kg	8.8		9.19		9.51		8.39		12.1		4.25		7.17		9.96		8.26		6.43		8.56		7.6		
Copper	7440-50-8	3,100	9,400	---	3,200	---	mg/Kg	38		259		36.7		40.2		95.6		61.6	JL	23.1	JL	78.4	JL	26.4	JL	36.8	JL	27.7	JL	24.8	JL	
Iron	7439-89-6	55,000	160,000	---	56,000	---	mg/Kg	19,600	JL	30,900	JL	20,600	JL	19,800		29,100	JL	12,000	JL	19,000	JL	20,400	JL	18,000	JL	15,800	JL	18,800	JL	16,300	JL	
Lead	7439-92-1	400	400	250	---	---	mg/Kg	9.24		284		41.9		8.69		176		73.7	JK	13.5	JK	68.6	JK	51.4	JK	69.5	JK	11.2	JK	9.94	JK	
Magnesium	7439-95-4	---	---	---	---	---	mg/Kg	5,840		4,860		6,550		3,810		7,760		2,710	JK	5,200		6,140	JK	5,680	JK	4,260		4,730	JK	4,210	JK	
Manganese	7439-96-5	---	---	---	11,200	---	mg/Kg	251		359		274		271		318		176		239	JK	283		266		219		325		292		
Mercury	7439-97-6	11	33	2	---	---	mg/Kg	0.045	JQ	0.043	JQ	0.05	JQ	0.195		0.049	JQ	0.093		0.034	JQ	0.115		0.034	JQ	0.045	JQ	0.063	JQ	0.056	JQ	
Nickel	7440-02-0	1,500	4,600	---	1,600	---	mg/Kg	31.6		41.2		37		23		27.4		17.6		25		23.7		31.1		21.9		25.5		25.4		
Potassium	7440-09-7	---	---	---	---	---	mg/Kg	906	JL	936	JL	819	JL	935	JL	772	JL	440		741		765		802		530		549		502		
Selenium	7782-49-2	390	1,200	---	400	---	mg/Kg	1.44	U	1.47	U	1.53	U	1.39	U	5.82		1.29	U	1.34	U	1.44	U	1.35	U	1.3	U	1.46	U	1.44	U	
Silver	7440-22-4	390	1,200	---	400	---	mg/Kg	2.8	JQ	4.23	JQ	2.38	JQ	1.53	JQ	2.68	JQ	2.55	JQ	3.05	JQ	3.4	JQ	3.24	JQ	2.94	JQ	3.53	JQ	3.22	JQ	
Sodium	7440-23-5	---	---	---	---	---	mg/Kg	166	JL	268	JL	135	JL	233	JL	480	JL	234		211		349		441		289		147		129		
Thallium	7440-28-0	0.78	2.3	---	0.8	---	mg/Kg	3.81	JQ	14.7	U	5.4	JQ	13.9	U	13.8	U	1.54		2.3		2.31		2.68		1.75		3.21		2.41		
Vanadium	7440-62-2	390	1,200	---	400	---	mg/Kg	44.8		39.6		45		37.7		44.8		16.6		37.9		34.6		40.5		27.4		43.8		37.6		
Zinc	7440-66-6	23,000	70,000	---	24,000	---	mg/Kg	34.9		172		33.4		38.8		240		264		33.3		237		46.5		87.9		33.5		31.1		
NWTPH-HCID																																
Gasoline	STL00228	---	---	100 <sup>(1)</sup>	---	---	mg/Kg	22	U	23	U	21	U	24	U	61	U	210	U	19	U	1,200	U	42	U	1,000	U	23	U	22	U	
#2 Diesel (>C12-C24)	STL00096	---	---	2,000 <sup>(1)</sup>	---	---	mg/Kg	55	U	58	U	54	U	3,500		1,400		780		49	U	2,900	U	100	U	2,600	U	75		55	U	
Motor Oil	STL00299	---	---	2,000 <sup>(1)</sup>	---	---	mg/Kg	110	U	120		110	U	25,000		6,500		1,500		170		5,900	U	380		5,200	U	560		280		
TPH-Dx																																
#2 Diesel (C10-C24)	STL00096	---	---	2,000	---	---	mg/Kg	---	---	---	---	---	---	2,300	JK	790	JK	550		---	---	---	---	---	---	---	---	---	---	---	---	
Motor Oil (>C24-C36)	STL00299	---	---	2,000	---	---	mg/Kg	---	---	---	---	---	---	22,000		4,700		1,100		---	---	---	---	---	---	---	---	---	---	---	---	
PCBs																																
Aroclor 1016	12674-11-2	4.1	12	---	5.6	14	mg/Kg	0.254	U	0.255	U	0.127	U	0.119	U	0.112	U	0.112	U	0.111	U	0.117	U	0.108	U	0.114	U	0.122	U	0.12	U	
Aroclor 1221	11104-28-2	0.2	20	---	---	---	mg/Kg	0.634	U	0.637	U	0.319	U	0.297	U	0.28	U	0.28	U	0.277	U	0.292	U	0.271	U	0.284	U	0.304	U	0.301	U	
Aroclor 1232	11141-16-5	0.17	17	---	---	---	mg/Kg	0.254	U	0.255	U	0.127	U	0.119	U	0.112	U	0.112	U	0.111	U	0.117	U	0.108	U	0.114	U	0.122	U	0.12	U	
Aroclor 1242	53469-21-9	0.23	23	---	---	---	mg/Kg	0.254	U	0.255	U	0.127	U	0.119	U	0.112	U	0.112	U	0.111	U	0.117	U	0.108	U	0.114	U	0.122	U	0.12	U	
Aroclor 1248	12672-29-6	0.23	23	---	---	---	mg/Kg	0.254	U	0.255	U	0.127	U	0.119	U	0.112	U	0.112	U	0.111	U	0.117	U	0.108	U	0.114	U	0.122	U	0.12	U	
Aroclor 1254	11097-69-1	0.24	3.5	---	1.6	0.5	mg/Kg	0.254	U	0.255	U	0.127	U	0.119	U	0.112	U	0.112	U	0.111	U	0.117	U	0.108	U	0.114	U	0.122	U	0.12	U	
Aroclor 1260	11096-82-5	0.24	24	---	---	0.5	mg/Kg	0.254	U	0.255	U	0.127	U	0.119	U	0.112	U	0.112	U	0.111	U	0.117	U	0.108	U	0.114	U	0.122	U	0.12	U	
Total PCB	1336-36-3	0.23	23	1	---	0.5	mg/Kg	0.634	U	0.637	U	0.319	U	0.297	U	0.28	U	0.28	U	0.277	U	0.292	U	0.2								



Table B-4 2018 Workshop Area Soil Samples May Creek Landfill 15753 SE Renton Issaquah Rd Renton, WA																																				
Chemical Analysis	CAS Number	EPA RSL	EPA RML	WA MTCA Method A	WA MTCA Method B (Noncancer, Direct Contact)	WA MTCA Method B (Cancer, Direct Contact)	Date	12/10/2018	12/10/2018	12/10/2018	12/10/2018	12/10/2018	12/10/2018	12/10/2018	12/12/2018	12/12/2018	12/12/2018	12/12/2018	12/12/2018	12/12/2018	12/12/2018	12/12/2018	12/12/2018	12/12/2018	12/12/2018	12/12/2018	12/12/2018	12/12/2018	12/12/2018	12/12/2018	12/12/2018					
							Sampling Depth (inches)	0 - 6	0 - 6	0 - 6	0 - 6	0 - 6	0 - 6	12 - 24	0 - 6	12 - 24	0 - 6	12 - 24	0 - 6	12 - 24	0 - 6	12 - 24	0 - 6	12 - 24	0 - 6	12 - 24	0 - 6	12 - 24	0 - 6	12 - 24	0 - 6	12 - 24	0 - 6	12 - 24	0 - 6	12 - 24
							EPA Sample Number	18111116	18111117	18111118	18111119	18111120	18111128	18111129	18111130	18111131	18111132	18111133	18111134																	
							Field Sample Number	W101SS01	W102SS01	W103SS01	W104SS01	W201SS01	W204SS01	W201SB12	W202SS01	W202SB12	W203SS01	W203SB12	W299SB12																	
							Units	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual					
Dioxins																																				
2,3,7,8-TCDD	1746-01-6	4.8	150	--	93	12.8	pg/g	--	--	0.262	U	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.663	JH	--	--	--	--					
1,2,3,7,8-PeCDD	40321-76-4	--	--	--	--	--	pg/g	--	--	0.258	U	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1.68	JQ	--	--	--	--					
1,2,3,4,7,8-HxCDD	39227-28-6	--	--	--	--	--	pg/g	--	--	0.44	JQ	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2.51	JQ	--	--	--	--					
1,2,3,6,7,8-HxCDD	57653-85-7	--	--	--	--	--	pg/g	--	--	0.534	JQ	--	--	--	--	--	--	--	--	--	--	--	--	--	--	5.08		--	--	--	--					
1,2,3,7,8,9-HxCDD	19408-74-3	--	--	--	--	161	pg/g	--	--	0.389	JH	--	--	--	--	--	--	--	--	--	--	--	--	--	--	3.87	JQ	--	--	--	--					
1,2,3,4,6,7,8-HpCDD	35822-46-9	--	--	--	--	--	pg/g	--	--	10.5		--	--	--	--	--	--	--	--	--	--	--	--	--	--	132		--	--	--	--					
1,2,3,4,6,7,8,9-OCDD	3268-87-9	--	--	--	--	--	pg/g	--	--	65.4		--	--	--	--	--	--	--	--	--	--	--	--	--	--	1210		--	--	--	--					
2,3,7,8-TCDF	51207-31-9	--	--	--	--	--	pg/g	--	--	0.386	U	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2.13		--	--	--	--					
1,2,3,7,8-PeCDF	57117-41-6	--	--	--	--	--	pg/g	--	--	0.313	JQ	--	--	--	--	--	--	--	--	--	--	--	--	--	--	4.35	JQ	--	--	--	--					
2,3,4,7,8-PeCDF	57117-31-4	--	--	--	--	--	pg/g	--	--	0.2	U	--	--	--	--	--	--	--	--	--	--	--	--	--	--	5.58		--	--	--	--					
1,2,3,4,7,8-HxCDF	70648-26-9	--	--	--	--	--	pg/g	--	--	0.363	JH	--	--	--	--	--	--	--	--	--	--	--	--	--	--	17.1		--	--	--	--					
1,2,3,6,7,8-HxCDF	57117-44-9	--	--	--	--	--	pg/g	--	--	0.247	U	--	--	--	--	--	--	--	--	--	--	--	--	--	--	15.7		--	--	--	--					
2,3,4,6,7,8-HxCDF	60851-34-5	--	--	--	--	--	pg/g	--	--	0.26	U	--	--	--	--	--	--	--	--	--	--	--	--	--	--	12.2		--	--	--	--					
1,2,3,7,8,9-HxCDF	72918-21-9	--	--	--	--	--	pg/g	--	--	0.326	U	--	--	--	--	--	--	--	--	--	--	--	--	--	--	3.93	JQ	--	--	--	--					
1,2,3,4,6,7,8-HpCDF	67562-39-4	--	--	--	--	--	pg/g	--	--	1.45	JQ	--	--	--	--	--	--	--	--	--	--	--	--	--	--	150		--	--	--	--					
1,2,3,4,7,8,9-HpCDF	55673-89-7	--	--	--	--	--	pg/g	--	--	0.213	U	--	--	--	--	--	--	--	--	--	--	--	--	--	--	18.6		--	--	--	--					
1,2,3,4,6,7,8,9-OCDF	39001-02-0	--	--	--	--	--	pg/g	--	--	3.16	U	--	--	--	--	--	--	--	--	--	--	--	--	--	--	268		--	--	--	--					
Total Tetrachlorodibenzo-p-dioxin	41903-57-5	--	--	--	--	--	pg/g	--	--	0.262	U	--	--	--	--	--	--	--	--	--	--	--	--	--	--	4.27	J	--	--	--	--					
Total Pentachlorodibenzo-p-dioxin	36088-22-9	--	--	--	--	--	pg/g	--	--	0.311	J	--	--	--	--	--	--	--	--	--	--	--	--	--	--	13.2	J	--	--	--	--					
Total Hexachlorodibenzo-p-dioxin	34465-46-8	--	--	--	--	--	pg/g	--	--	3.28	J	--	--	--	--	--	--	--	--	--	--	--	--	--	--	45.5	J	--	--	--	--					
Total Heptachlorodibenzo-p-dioxin	37871-00-4	--	--	--	--	--	pg/g	--	--	21.3		--	--	--	--	--	--	--	--	--	--	--	--	--	--	251		--	--	--	--					
Total Tetrachlorodibenzofuran	30402-14-3	--	--	--	--	--	pg/g	--	--	0.434	J	--	--	--	--	--	--	--	--	--	--	--	--	--	--	41.3		--	--	--	--					
Total Pentachlorodibenzofuran	30402-15-4	--	--	--	--	--	pg/g	--	--	2.49	J	--	--	--	--	--	--	--	--	--	--	--	--	--	--	72.3	J	--	--	--	--					
Total Hexachlorodibenzofuran	55684-94-1	--	--	--	--	--	pg/g	--	--	1.35	J	--	--	--	--	--	--	--	--	--	--	--	--	--	--	137	J	--	--	--	--					
Total Heptachlorodibenzofuran	38998-75-3	--	--	--	--	--	pg/g	--	--	3.57	J	--	--	--	--	--	--	--	--	--	--	--	--	--	--	234		--	--	--	--					
TEQ WHO2005 ND=0	3333-30-0	4.8	150	--	93	12.8	pg/g	--	--	0.246		--	--	--	--	--	--	--	--	--	--	--	--	--	--	13.2		--	--	--	--					
TEQ WHO2005 ND=0.5	3333-30-1	4.8	150	--	93	12.8	pg/g	--	--	0.623		--	--	--	--	--	--	--	--	--	--	--	--	--	--	13.4		--	--	--	--					

Notes: (1) MTCA cleanup levels for total petroleum hydrocarbons (TPH) apply to the NWTPH-Gx and NWTPH-Dx analyses. They are presented for the NWTPH-HCID results for comparison purposes only.

**426** = Detected results are bolded.

1,180 = Yellow highlights indicate results that exceed listed screening levels.

--- = Not Applicable

µg/kg = micrograms per kilogram

CAS = Chemical Abstracts Service

Dioxins = Dioxins/Furans, SW846 Method 8290A

EPA RML = Environmental Protection Agency (EPA) Removal Management Levels (RML), 40 CFR Part 300, November 2018

EPA RSL = Environmental Protection Agency (EPA) Regional Screening Levels (RSL), 40 CFR Part 300, November 2018

H = The sample result is biased high.

J = The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

K = The bias of the sample is not known.

L = The sample result is biased low.

mg/Kg = milligrams per kilogram

NWTPH-Dx = Northwest Total Petroleum Hydrocarbons - Extended Diesel Range (Semi-volatile Petroleum Products)

NWTPH-HCID = Northwest Total Petroleum Hydrocarbons - Hydrocarbon Identification

Pesticides = Organochlorine Pesticides, EPA Method 8081B by GC/ECD

PCBs = Polychlorinated Biphenyls (PCBs), EPA Method 8082A by GC/ECD

pg/g = picograms per gram

Q = Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.

Qual = Qualifier

SVOCs = Semi-Volatile Organic Compounds, EPA Method 8270D by GC/MS

TAL Metals = Target Analyte List Metals, EPA Method 6010C (ICP-AES) and 7471 (CVAA)

U = The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.

VOCs = Volatile Organic Compounds, EPA Method 8260C by GC/MS

WA MTCA Method A = Washington State (WA) Model Toxics Control Act (MTCA) Cleanup Regulation Method A (unrestricted land use) value from the Cleanup and Risk Calculations tables (CLARC), chapter 173-340 WAC, August 2015

WA MTCA Method B = Washington State (WA) Model Toxics Control Act (MTCA) Cleanup Regulation Method B (unrestricted land use) value from the Cleanup and Risk Calculations tables (CLARC), chapter 173-340 WAC, August 2015

<div>Table B-5</div> <div>2018 Bus and Landfill Area Soil Samples</div> <div>May Creek Landfill</div> <div>15753 SE Renton Issaquah Rd</div> <div>Renton, WA</div>																	
Chemical Analysis	CAS Number	EPA RSL	EPA RML	WA MTCA Method A	WA MTCA Method B (Cancer, Direct Contact)	WA MTCA Method B (Cancer, Direct Contact)	Date	12/10/2018		12/11/2018		12/11/2018		12/11/2018		12/11/2018	
							Sampling Depth (inches)	0 - 6		0 - 6		12 - 24		0 - 6		12 - 24	
							EPA Sample Number	18111121		18111122		18111123		18111124		18111127	
							Field Sample Number	B201SS01		L201SS01		L201SB12		L202SS01		L202SB12	
							Units	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
VOCs																	
1,1,1,2-Tetrachloroethane	630-20-6	2,000	200,000	---	2,400,000	38,000	µg/Kg	66	U	100	U	67	U	82	U	48	U
1,1,1-Trichloroethane	71-55-6	8,100,000	24,000,000	2,000	160,000,000	---	µg/Kg	66	U	100	U	67	U	82	U	48	U
1,1,2,2-Tetrachloroethane	79-34-5	600	60,000	---	1,600,000	5,000	µg/Kg	33	U	51	U	34	U	41	U	24	U
1,1,2-Trichloroethane	79-00-5	1,100	4,500	---	320,000	18,000	µg/Kg	33	U	51	U	34	U	41	U	24	U
1,1-Dichloroethane	75-34-3	3,600	360,000	---	16,000,000	180,000	µg/Kg	66	U	100	U	67	U	82	U	48	U
1,1-Dichloroethene	75-35-4	230,000	680,000	---	4,000,000	---	µg/Kg	66	U	100	U	67	U	82	U	48	U
1,1-Dichloropropene	563-58-6	---	---	---	---	---	µg/Kg	66	U	100	U	67	U	82	U	48	U
1,2,3-Trichlorobenzene	87-61-6	63,000	190,000	---	---	---	µg/Kg	250	U	380	U	250	U	310	U	48	U
1,2,3-Trichloropropane	96-18-4	5.1	510	---	320,000	---	µg/Kg	66	U	100	U	67	U	82	U	48	U
1,2,4-Trichlorobenzene	120-82-1	24,000	170,000	---	800,000	34,000	µg/Kg	98	UJL	150	UJL	100	UJL	120	UJL	83	JQ
1,2,4-Trimethylbenzene	95-63-6	300,000	910,000	---	---	---	µg/Kg	66	U	100	U	1,900		82	U	24	U
1,2-Dibromo-3-Chloropropane	96-12-8	5.3	530	---	16,000	1,300	µg/Kg	410	U	630	U	420	U	510	U	23	JQ
1,2-Dibromoethane	106-93-4	36	3,600	5	720,000	500	µg/Kg	33	U	51	U	34	U	41	U	24	U
1,2-Dichlorobenzene	95-50-1	1,800,000	5,400,000	---	7,200,000	---	µg/Kg	66	U	100	U	67	U	82	U	24	U
1,2-Dichloroethane	107-06-2	460	46,000	---	480,000	11,000	µg/Kg	33	U	51	U	34	U	41	U	48	U
1,2-Dichloropropane	78-87-5	2,500	47,000	---	7,200,000	27,000	µg/Kg	33	U	51	U	34	U	41	U	72	U
1,3,5-Trimethylbenzene	108-67-8	270,000	810,000	---	800,000	---	µg/Kg	66	U	100	U	330		82	U	72	U
1,3-Dichlorobenzene	541-73-1	---	---	---	---	---	µg/Kg	98	U	150	U	100	U	120	U	72	U
1,3-Dichloropropane	142-28-9	1,600,000	4,700,000	---	---	---	µg/Kg	98	U	150	U	100	U	120	U	48	U
1,4-Dichlorobenzene	106-46-7	2,600	260,000	---	5,600,000	190,000	µg/Kg	98	U	150	U	100	U	120	U	48	U
2,2-Dichloropropane	594-20-7	---	---	---	---	---	µg/Kg	66	U	100	U	67	U	82	U	48	U
2-Chlorotoluene	95-49-8	1,600,000	4,700,000	---	1,600,000	---	µg/Kg	66	U	100	U	67	U	82	U	13	JQ
4-Chlorotoluene	106-43-4	1,600,000	4,700,000	---	---	---	µg/Kg	66	U	100	U	67	U	82	U	36	U
4-Isopropyltoluene	99-87-6	---	---	---	---	---	µg/Kg	22	JQ	100	U	94		82	U	120	U
Benzene	71-43-2	1,200	120,000	30	320,000	18,000	µg/Kg	21	JQ	76	U	16	JQ	61	U	48	U
Bromobenzene	108-86-1	290,000	860,000	---	---	---	µg/Kg	160	U	250	U	170	U	200	U	72	U
Bromochloromethane	74-97-5	150,000	450,000	---	---	---	µg/Kg	66	U	100	U	67	U	82	U	240	U
Bromodichloromethane	75-27-4	290	29,000	---	1,600,000	16,000	µg/Kg	98	U	150	U	100	U	120	U	240	U
Bromoform	75-25-2	19,000	1,900,000	---	1,600,000	130,000	µg/Kg	330	U	510	U	340	U	410	U	24	U
Bromomethane	74-83-9	6,800	21,000	---	112,000	---	µg/Kg	330	U	510	U	340	U	410	U	48	U
Carbon tetrachloride	56-23-5	650	65,000	---	320,000	14,000	µg/Kg	33	UJL	51	UJL	34	UJL	41	UJL		R
Chlorobenzene	108-90-7	280,000	830,000	---	1,600,000	---	µg/Kg	66	U	100	U	67	U	82	U	48	U
Chloroethane	75-00-3	14,000,000	41,000,000	---	---	---	µg/Kg	660	U	1,000	U	670	U	820	U	120	U
Chloroform	67-66-3	320	32,000	---	800,000	32,000	µg/Kg	66	U	100	U	67	U	82	U	72	U
Chloromethane	74-87-3	110,000	330,000	---	---	---	µg/Kg	160	U	250	U	170	U	200	U	24	U
cis-1,2-Dichloroethene	156-59-2	160,000	470,000	---	160,000	---	µg/Kg	98	U	150	U	100	U	120	U	48	U
cis-1,3-Dichloropropene	10061-01-5	---	---	---	---	---	µg/Kg	33	U	51	U	34	U	41	U	72	U
Dibromochloromethane	124-48-1	8,300	830,000	---	1,600,000	12,000	µg/Kg	66	U	100	U	67	U	82	U	240	U
Dibromomethane	74-95-3	24,000	71,000	---	800,000	---	µg/Kg	98	U	150	U	100	U	120	U	30	JQ
Dichlorodifluoromethane	75-71-8	87,000	260,000	---	16,000,000	---	µg/Kg	330	UJL	510	UJL	340	UJL	410	UJL	58	JQ
Ethylbenzene	100-41-4	5,800	580,000	6,000	8,000,000	---	µg/Kg	66	U	100	U	190		82	U	48	U
Hexachlorobutadiene	87-68-3	1,200	120,000	---	80,000	13,000	µg/Kg	250	UJL	380	UJL	250	UJL	310	UJL	48	U
Isopropylbenzene	98-82-8	1,900,000	5,800,000	---	8,000,000	---	µg/Kg	66	U	100	U	110		82	U	300	U
Methyl tert-butyl ether	1634-04-4	47,000	4,700,000	100	---	560,000	µg/Kg	66	U	100	U	67	U	82	U	97	JQ
Methylene Chloride	75-09-2	57,000	1,000,000	20	480,000	500,000	µg/Kg	410	U	630	U	420	U	510	U	180	U
m-Xylene & p-Xylene	179601-23-1	---	---	9,000	---	---	µg/Kg	330	U	510	U	770		410	U	48	U
Naphthalene	91-20-3	3,800	380,000	5,000	1,600,000	---	µg/Kg	160	U	250	U	250		200	U	34	JQ
n-Butylbenzene	104-51-8	3,900,000	12,000,000	---	4,000,000	---	µg/Kg	250	U	380	U	580		310	U	48	U
N-Propylbenzene	103-65-1	3,800,000	11,000,000	---	8,000,000	---	µg/Kg	66	U	100	U	260		82	U	48	U
o-Xylene	95-47-6	650,000	1,900,000	9,000	16,000,000	---	µg/Kg	98	U	150	U	150		120	U	48	U
sec-Butylbenzene	135-98-8	7,800,000	23,000,000	---	8,000,000	---	µg/Kg	66	U	100	U	57	JQ	82	U	7	JQ

Table B-5 2018 Bus and Landfill Area Soil Samples May Creek Landfill 15753 SE Renton Issaquah Rd Renton, WA																	
Chemical Analysis	CAS Number	EPA RSL	EPA RML	WA MTCA Method A	WA MTCA Method B (Cancer, Direct Contact)	WA MTCA Method B (Cancer, Direct Contact)	Date	12/10/2018		12/11/2018		12/11/2018		12/11/2018		12/11/2018	
							Sampling Depth (inches)	0 - 6		0 - 6		12 - 24		0 - 6		12 - 24	
							EPA Sample Number	18111121		18111122		18111123		18111124		18111127	
							Field Sample Number	B201SS01		L201SS01		L201SB12		L202SS01		L202SB12	
							Units	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
Styrene	100-42-5	6,000,000	18,000,000	---	16,000,000	---	µg/Kg	66	U	100	U	67	U	82	U	29	JQ
t-Butylbenzene	98-06-6	7,800,000	23,000,000	---	8,000,000	---	µg/Kg	66	U	100	U	67	U	82	U	72	U
Tetrachloroethene	127-18-4	24,000	240,000	50	480,000	480,000	µg/Kg	66	U	100	U	67	U	82	U	48	U
Toluene	108-88-3	4,900,000	15,000,000	7,000	6,400,000	---	µg/Kg	250	U	380	U	250	U	310	U	72	U
trans-1,2-Dichloroethene	156-60-5	1,600,000	4,700,000	---	1,600,000	---	µg/Kg	98	U	150	U	100	U	120	U	240	U
trans-1,3-Dichloropropene	10061-02-6	---	---	---	---	---	µg/Kg	66	U	100	U	67	U	82	U	180	U
Trichloroethene	79-01-6	940	12,000	30	40,000	12,000	µg/Kg	98	U	150	U	100	U	120	U	180	U
Trichlorofluoromethane	75-69-4	23,000,000	70,000,000	---	24,000,000	---	µg/Kg	330	U	130	JQ	340	U	410	U	72	U
Vinyl chloride	75-01-4	59	5,900	---	240,000	---	µg/Kg	250	U	380	U	250	U	310	U	120	U
SVOCs																	
1,2,4-Trichlorobenzene	120-82-1	24,000	170,000	---	800,000	34,000	µg/Kg	1,980	U	55.5	U	116	U	119	U	1,150	U
1,2-Dichlorobenzene	95-50-1	1,800,000	5,400,000	---	7,200,000	---	µg/Kg	1,980	U	55.5	U	116	U	119	U	1,150	U
1,3-Dichlorobenzene	541-73-1	---	---	---	---	---	µg/Kg	1,980	U	55.5	U	116	U	119	U	1,150	U
1,4-Dichlorobenzene	106-46-7	2,600	260,000	---	5,600,000	190,000	µg/Kg	178	U	55.5	U	116	U	119	U	1,150	U
2,4,5-Trichlorophenol	95-95-4	6,300,000	19,000,000	---	8,000,000	---	µg/Kg	989	U	27.7	U	58.2	U	59.5	U	573	U
2,4,6-Trichlorophenol	88-06-2	49,000	190,000	---	80,000	91,000	µg/Kg	989	U	27.7	U	58.2	U	59.5	U	573	U
2,4-Dichlorophenol	120-83-2	190,000	570,000	---	240,000	---	µg/Kg	989	U	27.7	U	58.2	U	59.5	U	573	U
2,4-Dimethylphenol	105-67-9	1,300,000	3,800,000	---	1,600,000	---	µg/Kg	178	U	27.7	U	58.2	U	59.5	U	573	U
2,4-Dinitrophenol	51-28-5	130,000	380,000	---	160,000	---	µg/Kg	29,700	U	832	U	1,750	U	1,780	U	17,200	U
2,4-Dinitrotoluene	121-14-2	1,700	170,000	---	160,000	3,200	µg/Kg	5,930	U	166	U	349	U	357	U	3,440	U
2,6-Dinitrotoluene	606-20-2	360	36,000	---	24,000	670	µg/Kg	3,950	U	111	U	233	U	238	U	2,290	U
2-Chloronaphthalene	91-58-7	4,800,000	14,000,000	---	6,400,000	---	µg/Kg	989	U	27.7	U	58.2	U	59.5	U	573	U
2-Chlorophenol	95-57-8	390,000	1,200,000	---	400,000	---	µg/Kg	989	U	27.7	U	58.2	U	59.5	U	573	U
2-Methylnaphthalene	91-57-6	240,000	720,000	---	320,000	---	µg/Kg	989	U	27.7	U	1,560		59.5	U	573	U
2-Methylphenol	95-48-7	3,200,000	9,500,000	---	4,000,000	---	µg/Kg	148	JQ	13.9	U	29.1	U	29.7	U	287	U
2-Nitroaniline	88-74-4	630,000	1,900,000	---	800,000	---	µg/Kg	989	U	27.7	U	58.2	U	59.5	U	573	U
2-Nitrophenol	88-75-5	---	---	---	---	---	µg/Kg	3,950	U	111	U	233	U	238	U	2,290	U
3 & 4-Methylphenol	84989-04-8	---	---	---	---	2,200	µg/Kg	1,980	U	55.5	U	116	U	119	U	1,150	U
3,3'-Dichlorobenzidine	91-94-1	1,200	120,000	---	---	---	µg/Kg	19,800	U	1,110	U	1,160	U	1,190	U	2,290	U
3-Nitroaniline	99-09-2	---	---	---	---	---	µg/Kg	1,480	U	41.6	U	87.3	U	89.2	U	860	U
4,6-Dinitro-2-methylphenol	534-52-1	5,100	15,000	---	---	---	µg/Kg	14,800	U	416	U	873	U	892	U	8,600	U
4-Bromophenyl-phenylether	101-55-3	---	---	---	---	---	µg/Kg	178	U	41.6	U	87.3	U	89.2	U	860	U
4-Chloro-3-methylphenol	59-50-7	6,300,000	19,000,000	---	---	---	µg/Kg	989	U	27.7	U	58.2	U	59.5	U	573	U
4-Chloroaniline	106-47-8	2,700	270,000	---	320,000	5,000	µg/Kg	178	U	41.6	U	87.3	U	89.2	U	860	U
4-Chlorophenyl-phenylether	7005-72-3	---	---	---	---	---	µg/Kg	1,480	U	41.6	U	87.3	U	89.2	U	860	U
4-Nitroaniline	100-01-6	27,000	760,000	---	---	---	µg/Kg	178	U	55.5	U	116	U	119	U	1,150	U
4-Nitrophenol	100-02-7	---	---	---	---	---	µg/Kg	178	U	555	U	1,160	U	1,190	U	11,500	U
Acenaphthene	83-32-9	3,600,000	11,000,000	---	4,800,000	---	µg/Kg	989	U	27.7	U	136		17.8	JQ	573	U
Acenaphthylene	208-96-8	---	---	---	---	---	µg/Kg	989	U	27.7	U	58.2	U	59.5	U	573	U
Anthracene	120-12-7	18,000,000	54,000,000	---	24,000,000	---	µg/Kg	494	U	4.86	JQ	29.1	U	55.8		287	U
Azobenzene as 1,2-Diphenylhydrazine	103-33-3	5,600	560,000	---	---	9,100	µg/Kg	178	U	27.7	U	58.2	U	59.5	U	573	U
Benzidine	92-87-5	0.53	53	---	240,000	4.3	µg/Kg	115,000	U	3,240	U	6,790	U	6,940	U	66,900	U
Benzo(a)anthracene	56-55-3	1,100	110,000	---	---	1,370	µg/Kg	2,470	U	139	U	146	U	212		287	U
Benzo(a)pyrene	50-32-8	110	11,000	100	---	137	µg/Kg	19,800	UJK	1,110	U	5,820	U	5,950	UJK	2,290	U
Benzo(b)fluoranthene	205-99-2	1,100	110,000	---	---	1,370	µg/Kg	19,800	UJK	1,110	U	5,820	U	5,950	UJK	2,290	U
Benzo(g,h,i)perylene	191-24-2	---	---	---	---	---	µg/Kg	9,890	UJK	555	U	2,910	U	2,970	UJK	1,150	U
Benzo(k)fluoranthene	207-08-9	11,000	1,100,000	---	---	13,700	µg/Kg	9,890	UJK	555	U	2,910	U	2,970	UJK	1,150	U
Benzoic acid	65-85-0	250,000,000	760,000,000	---	320,000,000	---	µg/Kg	49,400	U	1,390	U	2,910	U	2,970	U	28,700	U
Benzyl alcohol	100-51-6	6,300,000	19,000,000	---	8,000,000	---	µg/Kg	178	JQ	27.7	U	58.2	U	59.5	U	573	U
Bis(2-chloroethoxy)methane	111-91-1	190,000	570,000	---	---	---	µg/Kg	989	U	27.7	U	58.2	U	59.5	U	573	U
Bis(2-chloroethyl)ether	111-44-4	230	23,000	---	---	910	µg/Kg	14,800	U	416	U	873	U	892	U	8,600	U
Bis(2-chloroisopropyl)ether	108-60-1	3,100,000	9,400,000	---	3,200,000	14,000	µg/Kg	178	U	555	U	1,160	U	1,190	U	11,500	U



<div>Table B-5</div> <div>2018 Bus and Landfill Area Soil Samples</div> <div>May Creek Landfill</div> <div>15753 SE Renton Issaquah Rd</div> <div>Renton, WA</div>																	
Chemical Analysis	CAS Number	EPA RSL	EPA RML	WA MTCA Method A	WA MTCA Method B (Cancer, Direct Contact)	WA MTCA Method B (Cancer, Direct Contact)	Date	12/10/2018		12/11/2018		12/11/2018		12/11/2018		12/11/2018	
							Sampling Depth (inches)	0 - 6		0 - 6		12 - 24		0 - 6		12 - 24	
							EPA Sample Number	18111121		18111122		18111123		18111124		18111127	
							Field Sample Number	B201SS01		L201SS01		L201SB12		L202SS01		L202SB12	
							Units	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
Bis(2-ethylhexyl)phthalate	117-81-7	39,000	3,800,000	---	1,600,000	71,400	µg/Kg	14,800	U	832	U	4,380		892	U	1,720	U
Butyl benzyl phthalate	85-68-7	290,000	29,000,000	---	16,000,000	530,000	µg/Kg	14,800	U	832	U	1,050		495	JQ	1,720	U
Carbazole	86-74-8	---	---	---	---	---	µg/Kg	989	U	27.7	U	58.2	U	26	JQ	573	U
Chrysene	218-01-9	110,000	11,000,000	---	---	---	µg/Kg	4,940	U	277	U	209		312		573	U
Dibenzo(a,h)anthracene	53-70-3	110	11,000	---	---	---	µg/Kg	19,800	UJK	1,110	U	5,820	U	5,950	UJK	2,290	U
Dibenzofuran	132-64-9	73,000	220,000	---	80,000	---	µg/Kg	989	U	27.7	U	58.2	U	18.6	JQ	573	U
Diethyl phthalate	84-66-2	51,000,000	150,000,000	---	64,000,000	---	µg/Kg	989	U	27.7	U	58.2	U	59.5	U	573	U
Dimethyl phthalate	131-11-3	---	---	---	---	---	µg/Kg	494	U	13.9	U	29.1	U	29.7	U	287	U
Di-n-butyl phthalate	84-74-2	6,300,000	19,000,000	---	8,000,000	---	µg/Kg	989	U	34.3		58.2	U	59.5	U	573	U
Di-n-octyl phthalate	117-84-0	630,000	1,900,000	---	800,000	---	µg/Kg	19,800	UJK	1,110	U	233	U	5,950	UJK	2,290	U
Fluoranthene	206-44-0	2,400,000	7,200,000	---	3,200,000	---	µg/Kg	989	U	22.2	JQ	5,820	U	194		573	U
Fluorene	86-73-7	2,400,000	7,200,000	---	3,200,000	---	µg/Kg	989	U	27.7	U	184		59.5	U	573	U
Hexachlorobenzene	118-74-1	210	21,000	---	64,000	630	µg/Kg	989	U	27.7	U	153		59.5	U	573	U
Hexachlorobutadiene	87-68-3	1,200	120,000	---	80,000	13,000	µg/Kg	1,980	U	55.5	U	58.2	U	119	U	1,150	U
Hexachlorocyclopentadiene	77-47-4	1,800	5,300	---	480,000	---	µg/Kg	19,800	U	555	U	116	U	1190	U	11,500	U
Hexachloroethane	67-72-1	1,800	130,000	---	56,000	25,000	µg/Kg	1,980	U	55.5	U	1,160	U	119	U	1,150	U
Indeno(1,2,3-cd)pyrene	193-39-5	1,100	110,000	---	---	1,370	µg/Kg	19,800	UJK	1,110	U	116	U	5,950	UJK	2,290	U
Isophorone	78-59-1	570,000	38,000,000	---	16,000,000	1,100,000	µg/Kg	5,930	U	166	U	5,820	U	357	U	3,440	U
Naphthalene	91-20-3	3,800	380,000	5,000	1,600,000	---	µg/Kg	1,980	U	55.5	U	349	U	119	U	1,150	U
Nitrobenzene	98-95-3	5,100	380,000	---	160,000	---	µg/Kg	1,980	U	55.5	U	561		119	U	1,150	U
N-Nitrosodimethylamine	62-75-9	2	200	---	640	---	µg/Kg	1,980	U	55.5	U	116	U	119	U	1,150	U
N-Nitrosodi-n-propylamine	621-64-7	78	7,800	---	---	---	µg/Kg	2,970	U	83.2	U	116	U	178	U	1,720	U
N-Nitrosodiphenylamine	86-30-6	110,000	11,000,000	---	---	---	µg/Kg	989	U	27.7	U	175	U	59.5	U	573	U
Pentachlorophenol	87-86-5	1,000	100,000	---	400,000	2,500	µg/Kg	14,800	U	416	U	58.2	U	892	U	8,600	U
Phenanthrene	85-01-8	---	---	---	---	---	µg/Kg	989	U	9.71	JQ	873	U	213		573	U
Phenol	108-95-2	19,000,000	57,000,000	---	24,000,000	---	µg/Kg	178	U	55.5	U	379		119	U	1,150	U
Pyrene	129-00-0	1,800,000	5,400,000	---	2,400,000	---	µg/Kg	2,470	U	79.8	JQ	116	U	606		129	JQ
Target Analyte List Metals																	
Aluminum	7429-90-5	77,000	230,000	---	80,000	---	mg/Kg	8,750		6,900		18,100		7,300		20,200	JL
Antimony	7440-36-0	31	94	---	32	---	mg/Kg	1.42	UJK	2.14	UJK	2.28	UJK	1.71	UJK	1.41	UJL
Arsenic	7440-38-2	0.68	68	20	24	0.67	mg/Kg	6.98	JQ	7.84	JQ	16.9	JQ	11.9	JQ	8.55	
Barium	7440-39-3	15,000	46,000	---	16,000	---	mg/Kg	56.4	JH	52.4	JH	109	JH	51.6	JH	91.3	JH
Beryllium	7440-41-7	160	470	---	160	---	mg/Kg	0.142	UJL	0.214	UJL	0.228	UJL	0.171	UJL	1.41	UJL
Cadmium	7440-43-9	71	210	2	---	---	mg/Kg	1.32		0.668		1.72		0.619		0.444	
Calcium	7440-70-2	---	---	---	---	---	mg/Kg	4,870	JL	10,200	JL	12,600	JL	9,660	JL	5,900	JL
Chromium	7440-47-3	---	---	2,000	---	---	mg/Kg	96.6		15.8		37.4		19.2		42.5	
Cobalt	7440-48-4	23	70	---	---	---	mg/Kg	7.29		4.34		12.2		5.03		11.4	
Copper	7440-50-8	3,100	9,400	---	3,200	---	mg/Kg	107		52		119		72.8		32.2	JL
Iron	7439-89-6	55,000	160,000	---	56,000	---	mg/Kg	18,100	JL	9,790	JL	29,600	JL	13,000		27,500	JL
Lead	7439-92-1	400	400	250	---	---	mg/Kg	123		35		82.1		33.2		15.1	JK
Magnesium	7439-95-4	---	---	---	---	---	mg/Kg	4,380		2,520		8,200		2,740		6,190	JK
Manganese	7439-96-5	---	---	---	11,200	---	mg/Kg	198		230		471		260		360	
Mercury	7439-97-6	11	33	2	---	---	mg/Kg	0.044	JQ	0.125		0.113		0.098		0.052	JQ
Nickel	7440-02-0	1,500	4,600	---	1,600	---	mg/Kg	132		16.5		36.9		15.8		45.6	
Potassium	7440-09-7	---	---	---	---	---	mg/Kg	547	JL	1,290	JL	1,660	JL	1,300	JL	1,170	
Selenium	7782-49-2	390	1,200	---	400	---	mg/Kg	1.42	U	2.14	U	2.28	U	1.71	U	1.41	U
Silver	7440-22-4	390	1,200	---	400	---	mg/Kg	1.85	JQ	21.4	UJK	3.23	JQ	1.37	JQ	4.36	JQ
Sodium	7440-23-5	---	---	---	---	---	mg/Kg	181		244	JL	704	JL	280	JL	264	
Thallium	7440-28-0	0.78	2.3	---	0.8	---	mg/Kg	14.2	U	21.4	U	22.8	U	17.1	U	3.09	
Vanadium	7440-62-2	390	1,200	---	400	---	mg/Kg	26.3		22.3		62.1		27.8		48.6	
Zinc	7440-66-6	23,000	70,000	---	24,000	---	mg/Kg	134		218		196		160		47.4	

Table B-5 2018 Bus and Landfill Area Soil Samples May Creek Landfill 15753 SE Renton Issaquah Rd Renton, WA																	
Chemical Analysis	CAS Number	EPA RSL	EPA RML	WA MTCA Method A	WA MTCA Method B (Cancer, Direct Contact)	WA MTCA Method B (Cancer, Direct Contact)	Date	12/10/2018		12/11/2018		12/11/2018		12/11/2018		12/11/2018	
							Sampling Depth (inches)	0 - 6		0 - 6		12 - 24		0 - 6		12 - 24	
							EPA Sample Number	18111121		18111122		18111123		18111124		18111127	
							Field Sample Number	B201SS01		L201SS01		L201SB12		L202SS01		L202SB12	
							Units	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
NWTPH-HCID																	
Gasoline	STL00228	---	---	100 <sup>(1)</sup>	---	---	mg/kg	4,200		570	U	530	U	1,400	U	24	U
#2 Diesel (>C12-C24)	STL00096	---	---	2,000 <sup>(1)</sup>	---	---	mg/kg	59,000		1,500		1,900		3,400	U	74	
Motor Oil	STL00299	---	---	2,000 <sup>(1)</sup>	---	---	mg/kg	36,000		3,500		7,600		6,800	U	160	
NWTPH-Gx																	
Gasoline	STL00228	---	---	100	---	---	mg/kg	5.5		---	---	---	---	---	---	---	---
NWTPH-Dx																	
#2 Diesel (C10-C24)	STL00096	---	---	2,000	---	---	mg/kg	42,000	JK	730	JQ	1,200	JQ	---	---	---	---
Motor Oil (>C24-C36)	STL00299	---	---	2,000	---	---	mg/kg	29,000		2,700		5,800		---	---	---	---
Oil and Grease																	
Total Oil and Grease	---	---	---	---	---	---	mg/L	6.7	J	---	---	---	---	---	---	---	---
Total Oil and Grease with Silica Gel	---	---	---	---	---	---	mg/L	6.7	J	---	---	---	---	---	---	---	---
PCBs																	
Aroclor 1016	12674-11-2	4.1	12	---	5.6	14	mg/Kg	1.24	U	0.172	U	0.183	U	0.299	U	0.115	U
Aroclor 1221	11104-28-2	0.2	20	---	---	---	mg/Kg	3.1	U	0.429	U	0.457	U	0.748	U	0.287	U
Aroclor 1232	11141-16-5	0.17	17	---	---	---	mg/Kg	1.24	U	0.172	U	0.183	U	0.299	U	0.115	U
Aroclor 1242	53469-21-9	0.23	23	---	---	---	mg/Kg	1.24	U	0.172	U	0.183	UJL	0.299	UJL	0.115	U
Aroclor 1248	12672-29-6	0.23	23	---	---	---	mg/Kg	1.24	U	0.172	U	0.183	U	0.299	U	0.115	U
Aroclor 1254	11097-69-1	0.24	3.5	---	1.6	0.5	mg/Kg	1.24	U	0.172	U	0.183	U	0.299	U	0.115	U
Aroclor 1260	11096-82-5	0.24	24	---	---	0.5	mg/Kg	1.24	U	0.172	U	0.183	U	0.299	U	0.115	U
Total PCB	1336-36-3	0.23	23	1	---	0.5	mg/Kg	3.1	U	0.429	U	0.457	U	0.748	U	0.287	U
Pesticides																	
4,4'-DDD	72-54-8	1,900	5,700	---	---	4,200	µg/Kg	49.6	UJL	3.44	UJL	3.66	UJL	5.99	UJL	11.5	U
4,4'-DDE	72-55-9	2,000	70,000	---	---	2,900	µg/Kg	49.6	UJL	3.44	UJL	3.66	UJL	5.99	UJL	11.5	U
4,4'-DDT	50-29-3	1,900	110,000	3,000	40,000	2,900	µg/Kg	49.6	UJL	3.44	UJL	3.66	UJL	5.99	UJL	11.5	U
Aldrin	309-00-2	39	3,900	---	2,400	59	µg/Kg	49.6	UJL	3.44	UJL	3.66	UJL	5.99	UJL	11.5	U
alpha-BHC	319-84-6	86	8,600	---	640,000	160	µg/Kg	49.6	UJL	3.44	UJL	3.66	UJL	5.99	UJL	11.5	U
alpha-Chlordane	5103-71-9	---	---	---	---	---	µg/Kg	49.6	UJL	3.44	UJL	3.66	UJL	5.99	UJL	11.5	U
beta-BHC	319-85-7	300	30,000	---	---	560	µg/Kg	99.2	UJL	6.87	UJL	7.31	UJL	12	UJL	22.9	U
delta-BHC	319-86-8	---	---	---	---	---	µg/Kg	99.2	UJL	6.87	UJL	7.31	UJL	12	UJL	22.9	U
Dieldrin	60-57-1	34	3,400	---	4,000	63	µg/Kg	49.6	UJL	14.5	JL	3.66	UJL	5.99	UJL	11.5	U
Endosulfan I	959-98-8	---	---	---	---	---	µg/Kg	49.6	UJL	3.44	UJL	3.66	UJL	5.99	UJL	11.5	U
Endosulfan II	33213-65-9	---	---	---	---	---	µg/Kg	49.6	UJL	3.44	UJL	3.66	UJL	5.99	UJL	11.5	U
Endosulfan sulfate	1031-07-8	---	---	---	---	---	µg/Kg	178	UJL	6.87	UJL	7.31	UJL	12	UJL	22.9	U
Endrin	72-20-8	19,000	57,000	---	24,000	---	µg/Kg	49.6	UJL	3.44	UJL	3.66	UJL	5.99	UJL	11.5	U
Endrin aldehyde	7421-93-4	---	---	---	---	---	µg/Kg	99.2	UJL	6.87	UJL	7.31	UJL	12	UJL	22.9	U
Endrin ketone	53494-70-5	---	---	---	---	---	µg/Kg	99.2	UJL	6.87	UJL	7.31	UJL	12	UJL	22.9	U
gamma-BHC	58-89-9	570	57,000	10	24,000	910	µg/Kg	49.6	UJL	3.44	UJL	3.66	UJL	5.99	UJL	11.5	U
gamma-Chlordane	5566-34-7	---	---	---	---	---	µg/Kg	49.6	UJL	3.44	UJL	3.66	UJL	5.99	UJL	11.5	U
Heptachlor	76-44-8	130	13,000	---	40,000	220	µg/Kg	49.6	UJL	3.44	UJL	3.66	UJL	5.99	UJL	11.5	U
Heptachlor epoxide	1024-57-3	70	3,100	---	1,040	110	µg/Kg	178	UJL	3.44	UJL	3.66	UJL	5.99	UJL	11.5	U
Methoxychlor	72-43-5	320,000	950,000	---	400,000	---	µg/Kg	49.6	UJL	3.44	UJL	3.66	UJL	5.99	UJL	11.5	U
Toxaphene	8001-35-2	490	17,000	---	---	910	µg/Kg	6200	UJL	429	UJL	457	UJL	748	UJL	1430	U

- Notes: (1) MTCA cleanup levels for total petroleum hydrocarbons (TPH) apply to the NWTPH-Gx and NWTPH-Dx analyses. They are presented for the NWTPH-HCID results for comparison purposes only.
- 426** = Detected results are bolded.
  - 1,180 = Yellow highlights indicate results that exceed listed screening levels.
  - = Not Applicable
  - µg/kg = micrograms per kilogram
  - CAS = Chemical Abstracts Service
  - EPA RML = Environmental Protection Agency (EPA) Removal Management Levels (RML), 40 CFR Part 300, November 2018
  - EPA RSL = Environmental Protection Agency (EPA) Regional Screening Levels (RSL), 40 CFR Part 300, November 2018
  - H = The sample result is biased high.
  - J = The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
  - K = The bias of the sample is not known.
  - L = The sample result is biased low.
  - mg/Kg = milligrams per kilogram
  - mg/L = milligrams per liter
  - NWTPH-Dx = Northwest Total Petroleum Hydrocarbons - Extended Diesel Range (Semi-volatile Petroleum Products)
  - NWTPH-Gx = Northwest Total Petroleum Hydrocarbons - Extended Gasoline Range (Volatile Petroleum Products)
  - NWTPH-HCID = Northwest Total Petroleum Hydrocarbons - Hydrocarbon Identification
  - Pesticides = Organochlorine Pesticides, EPA Method 8081B by GC/ECD
  - PCBs = Polychlorinated Biphenyls (PCBs), EPA Method 8082A by GC/ECD
  - Q = Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.
  - Qual = Qualifier
  - SVOCs = Semi-Volatile Organic Compounds, EPA Method 8270D by GC/MS
  - TAL Metals = Target Analyte List Metals, EPA Method 6010C (ICP-AES) and 7471 (CVAA)
  - U = The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
  - VOCs = Volatile Organic Compounds, EPA Method 8260C by GC/MS
  - WA MTCA Method A = Washington State (WA) Model Toxics Control Act (MTCA) Cleanup Regulation Method A (unrestricted land use) value from the Cleanup and Risk Calculations tables (CLARC), chapter 173-340 WAC, August 2015
  - WA MTCA Method B = Washington State (WA) Model Toxics Control Act (MTCA) Cleanup Regulation Method B (unrestricted land use) value from the Cleanup and Risk Calculations tables (CLARC), chapter 173-340 WAC, August 2015





Table B-6 2018 Surface Water Samples May Creek Landfill 15753 SE Renton Issaquah Rd Renton, WA																															
Chemical Analysis	CAS Number	Washington Aquatic Life Criteria - Freshwater (Acute)	Washington Aquatic Life Criteria - Freshwater (Chronic)	Washington Human Health Criteria for Consumption of Water & Organisms	Washington Human Health Criteria for Consumption of Organisms Only	Date		12/11/2018		12/11/2018		12/11/2018		12/11/2018		12/11/2018		12/11/2018		12/11/2018		12/11/2018		12/11/2018		12/11/2018		12/11/2018			
						EPA Sample Number		18111408		18111410		18111413		18111412		18111404		18111405		18111406		18111403		18111402		18111401		18111411		18111409	
						Field Sample Number		SW01		SW02		SW03		SW04		SW05		SW06		SW06 Dup		SW07		SW08		SW09		SW10		SW11	
						Units	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results
2,4-Dichlorophenol	120-83-2	---	---	25	34	µg/L	0.961	U	1.01	U	0.987	U	1.13	U	1.07	U	1.01	U	0.988	U	1.2	U	1.12	U	1.03	U	28.4	U	0.949	U	
2,4-Dimethylphenol	105-67-9	---	---	85	97	µg/L	0.961	U	1.01	U	0.987	U	1.13	U	1.07	U	1.01	U	0.988	U	1.2	U	1.12	U	1.03	U	28.4	U	0.949	U	
2,4-Dinitrophenol	51-28-5	---	---	60	610	µg/L	28.8	U	30.2	U	29.6	U	34	U	32.2	U	30.4	U	29.7	U	36	U	33.7	U	31	U	28.4	U	28.5	U	
2,4-Dinitrotoluene	121-14-2	---	---	0.039	0.18	µg/L	28.8	U	30.2	U	29.6	U	34	U	32.2	U	30.4	U	29.7	U	36	U	33.7	U	31	U	28.4	U	28.5	U	
2,6-Dinitrotoluene	606-20-2	---	---	---	---	µg/L	0.481	U	0.503	U	0.494	U	0.567	U	0.537	U	0.507	U	0.494	U	0.6	U	0.561	U	0.517	U	0.473	U	0.474	U	
2-Chloronaphthalene	91-58-7	---	---	170	180	µg/L	0.961	U	1.01	U	0.987	U	1.13	U	1.07	U	1.01	U	0.988	U	1.2	U	1.12	U	1.03	U	28.4	U	0.949	U	
2-Chlorophenol	95-57-8	---	---	15	17	µg/L	0.961	U	1.01	U	0.987	U	1.13	U	1.07	U	1.01	U	0.988	U	1.2	U	1.12	U	1.03	U	0.946	U	0.949	U	
2-Methylnaphthalene	91-57-6	---	---	---	---	µg/L	1.92	U	2.01	U	1.97	U	2.27	U	2.15	U	2.03	U	1.98	U	2.4	U	2.24	U	2.07	U	28.4	U	1.9	U	
2-Methylphenol	95-48-7	---	---	---	---	µg/L	0.961	U	1.01	U	0.987	U	1.13	U	1.07	U	1.01	U	0.988	U	1.2	U	1.12	U	1.03	U	28.4	U	0.949	U	
2-Nitroaniline	88-74-4	---	---	---	---	µg/L	28.8	U	30.2	U	29.6	U	34	U	32.2	U	30.4	U	29.7	U	36	U	33.7	U	31	U	28.4	U	28.5	U	
2-Nitrophenol	88-75-5	---	---	---	---	µg/L	0.961	U	1.01	U	0.987	U	1.13	U	1.07	U	1.01	U	0.988	U	1.2	U	1.12	U	1.03	U	28.4	U	0.949	U	
3 & 4-Methylphenol	84989-04-8	---	---	---	---	µg/L	0.961	U	1.01	U	0.987	U	1.13	U	1.07	U	1.01	U	0.988	U	1.2	U	1.12	U	1.03	U	0.946	U	0.949	U	
3,3'-Dichlorobenzidine	91-94-1	---	---	0.0031	0.0033	µg/L	28.8	U	30.2	U	29.6	U	34	U	32.2	U	30.4	U	29.7	U	36	U	33.7	U	31	U	28.4	U	28.5	U	
3-Nitroaniline	99-09-2	---	---	---	---	µg/L	0.961	U	1.01	U	0.987	U	1.13	U	1.07	U	1.01	U	0.988	U	1.2	U	1.12	U	1.03	U	0.946	U	0.949	U	
4,6-Dinitro-2-methylphenol	534-52-1	---	---	7.1	25	µg/L	14.4	U	15.1	U	14.8	U	17	U	16.1	U	15.2	U	14.8	U	18	U	16.8	U	15.5	U	28.4	U	14.2	U	
4-Bromophenyl-phenylether	101-55-3	---	---	---	---	µg/L	0.961	U	1.01	U	0.987	U	1.13	U	1.07	U	1.01	U	0.988	U	1.2	U	1.12	U	1.03	U	28.4	U	0.949	U	
4-Chloro-3-methylphenol	59-50-7	---	---	36	36	µg/L	0.481	U	0.503	U	0.494	U	0.567	U	0.537	U	0.507	U	0.494	U	0.6	U	0.561	U	0.517	U	28.4	U	0.474	U	
4-Chloroaniline	106-47-8	---	---	---	---	µg/L	0.961	U	1.01	U	0.987	U	1.13	U	1.07	U	1.01	U	0.988	U	1.2	U	1.12	U	1.03	U	0.946	U	0.949	U	
4-Chlorophenyl-phenylether	7005-72-3	---	---	---	---	µg/L	0.961	U	1.01	U	0.987	U	1.13	U	1.07	U	1.01	U	0.988	U	1.2	U	1.12	U	1.03	U	28.4	U	0.949	U	
4-Nitroaniline	100-01-6	---	---	---	---	µg/L	28.8	U	30.2	U	29.6	U	34	U	32.2	U	30.4	U	29.7	U	36	U	33.7	U	31	U	28.4	U	28.5	U	
4-Nitrophenol	100-02-7	---	---	---	---	µg/L	14.4	U	15.1	U	14.8	U	17	U	16.1	U	15.2	U	14.8	U	18	U	16.8	U	15.5	U	28.4	U	14.2	U	
Acenaphthene	83-32-9	---	---	110	110	µg/L	0.961	U	1.01	U	0.987	U	1.13	U	1.07	U	1.01	U	0.988	U	1.2	U	1.12	U	1.03	U	0.946	U	0.949	U	
Acenaphthylene	208-96-8	---	---	---	---	µg/L	1.92	U	2.01	U	1.97	U	2.27	U	2.15	U	2.03	U	1.98	U	2.4	U	2.24	U	2.07	U	1.89	U	1.9	U	
Anthracene	120-12-7	---	---	3100	4600	µg/L	0.961	U	1.01	U	0.987	U	1.13	U	1.07	U	1.01	U	0.988	U	1.2	U	1.12	U	1.03	U	28.4	U	0.949	U	
Azobenzene as 1,2-Diphenylhydrazine	103-33-3	---	---	---	---	µg/L	0.961	U	1.01	U	0.987	U	1.13	U	1.07	U	1.01	U	0.988	U	1.2	U	1.12	U	1.03	U	28.4	U	0.949	U	
Benzidine	92-87-5	---	---	0.00002	0.000023	µg/L	28.8	U	30.2	U	29.6	U	34	U	32.2	U	30.4	U	29.7	U	36	U	33.7	U	31	U	28.4	U	28.5	U	
Benzo(a)anthracene	56-55-3	---	---	0.014	0.021	µg/L	0.961	U	1.01	U	0.987	U	1.13	U	1.07	U	1.01	U	0.988	U	1.2	U	1.12	U	1.03	U	28.4	U	0.949	U	
Benzo(a)pyrene	50-32-8	---	---	0.0014	0.0021	µg/L	1.92	U	2.01	U	1.97	U	2.27	U	2.15	U	2.03	U	1.98	U	2.4	U	2.24	U	2.07	U	1.89	U	1.9	U	
Benzo(b)fluoranthene	205-99-2	---	---	0.014	0.021	µg/L	1.92	U	2.01	U	1.97	U	2.27	U	2.15	U	2.03	U	1.98	U	2.4	U	2.24	U	2.07	U	1.89	U	1.9	U	
Benzo(g,h,i)perylene	191-24-2	---	---	---	---	µg/L	1.92	U	2.01	U	1.97	U	2.27	U	2.15	U	2.03	U	1.98	U	2.4	U	2.24	U	2.07						

Table B-6 2018 Surface Water Samples May Creek Landfill 15753 SE Renton Issaquah Rd Renton, WA																															
Chemical Analysis	CAS Number	Washington Aquatic Life Criteria - Freshwater (Acute)	Washington Aquatic Life Criteria - Freshwater (Chronic)	Washington Human Health Criteria for Consumption of Water & Organisms	Washington Human Health Criteria for Consumption of Organisms Only	Date		12/11/2018		12/11/2018		12/11/2018		12/11/2018		12/11/2018		12/11/2018		12/11/2018		12/11/2018		12/11/2018		12/11/2018		12/11/2018		12/11/2018	
						EPA Sample Number		18111408		18111410		18111413		18111412		18111404		18111405		18111406		18111403		18111402		18111401		18111411		18111409	
						Field Sample Number		SW01		SW02		SW03		SW04		SW05		SW06		SW06 Dup		SW07		SW08		SW09		SW10		SW11	
						Units	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results
TAL Metals																															
Aluminum	7429-90-5	---	---	---	---	mg/L	0.775		0.0942	JQ	0.0971	JQ	3.71		0.036	JQ	0.0363	JQ	0.0372	JQ	3.73		0.053	JQ	0.108	JQ	28.4		0.426		
Antimony	7440-36-0	---	---	0.012	0.18	mg/L	0.025	U	0.025	U	0.025	U	0.025	U	0.025	U	0.025	U	0.025	U	0.025	U	0.025	U	0.025	U	0.025	U	0.025	U	
Arsenic	7440-38-2	0.36	0.19	0.01	0.01	mg/L	0.005	JQ	0.025	U	0.025	U	0.0104	JQ	0.025	U	0.025	U	0.025	U	0.025	U	0.025	U	0.025	U	0.025	U	0.025	U	
Barium	7440-39-3	---	---	---	---	mg/L	0.0173	JQ	0.0116	JQ	0.0117	JQ	0.0937		0.102		0.102		0.101		0.174		0.0694		0.0719		0.0378		0.0658		
Beryllium	7440-41-7	---	---	---	---	mg/L	0.0446		0.0025	U	0.0025	U	0.0025	U	0.0025	U	0.0025	U	0.0025	U	0.0025	U	0.0025	U	0.0025	U	0.0035		0.0025	U	
Cadmium	7440-43-9	0.0080	0.0017	---	---	mg/L	0.0006	JQ	0.0025	U	0.0025	U	0.0004	JQ	0.0025	U	0.0025	U	0.0025	U	0.0003	JQ	0.0025	U	0.0025	U	0.0025	U	0.0025	U	
Calcium	7440-70-2	---	---	---	---	mg/L	5.37		9.22		10.1		20.5		83.2		88.3		88.2		87.6		91.9		103		18.6		105	JL	
Chromium	7440-47-3	0.98	0.32	---	---	mg/L	0.0047	JQ	0.0027	JQ	0.0025	JQ	0.0107	JQ	0.0028	JQ	0.0028	JQ	0.0029	JQ	0.0065	JQ	0.0028	JQ	0.0031	JQ	0.003	JQ	0.0034	JQ	
Cobalt	7440-48-4	---	---	---	---	mg/L	0.025	U	0.025	U	0.025	U	0.0083	JQ	0.025	U	0.025	U	0.025	U	0.025	U	0.025	U	0.025	U	0.025	U	0.025	U	
Copper	7440-50-8	0.033	0.021	1.3	---	mg/L	0.0086	JQ	0.0025	JQ	0.025	U	0.0281		0.0052	JQ	0.0074	JQ	0.0081	JQ	0.018	JQ	0.0078	JQ	0.0079	JQ	0.0082	JQ	0.0106	JQ	
Iron	7439-89-6	---	---	---	---	mg/L	0.843		0.37		0.363		15.2		0.382		0.268		0.286		2.6		0.0847	JQ	0.239		0.221		0.478		
Lead	7439-92-1	0.14	0.0054	---	---	mg/L	0.0041	JQ	0.0006	JQ	0.025	U	0.0323		0.025	U	0.025	U	0.0012	JQ	0.0188	JQ	0.0005	JQ	0.001	JQ	0.0016	JQ	0.0033	JQ	
Magnesium	7439-95-4	---	---	---	---	mg/L	1.66		3.14		3.36		5.56		19.3		20.7		20.3		20		19.7		20.9		3.77		20.7		
Manganese	7439-96-5	---	---	---	---	mg/L	0.0428		0.158		0.123		4.12		0.265		0.25		0.251		2.56		0.0245	JQ	0.101		0.0262		0.33		
Mercury	7439-97-6	0.0021	0.000012	---	---	mg/L	0.0005	U	0.0005	U	0.0005	U	0.0005	U	0.0005	U	0.0005	U	0.0005	U	0.0005	U	0.0005	U	0.0005	U	0.0005	U	0.0005	U	
Nickel	7440-02-0	2.6	0.29	0.15	0.19	mg/L	0.025	U	0.025	U	0.025	U	0.0116	JQ	0.025	U	0.025	U	0.025	U	0.0086	JQ	0.025	U	0.025	U	0.025	U	0.005	JQ	
Potassium	7440-09-7	---	---	---	---	mg/L	1.67		2.63		2.64		4.56		56.3		61.4		60.8		53.5		47.2		54.3		7.6		32.5		
Selenium	7782-49-2	0.02	0.005	0.12	0.48	mg/L	0.0535		0.025	U	0.025	U	0.025	U	0.025	U	0.025	U	0.025	U	0.025	U	0.025	U	0.025	U	0.0039	JQ	0.025	U	
Silver	7440-22-4	0.012	---	---	---	mg/L	0.0025	U	0.0025	U	0.0025	U	0.0025	U	0.0025	U	0.0025	U	0.0025	U	0.0025	U	0.0025	U	0.0025	U	0.0025	U	0.0025	U	
Sodium	7440-23-5	---	---	---	---	mg/L	4.32		11.5		12.3		12.8		24.2		29		25.6		24.5		27.6		28.9		6.32		36.9		
Thallium	7440-28-0	---	---	0.00024	0.00027	mg/L	0.0009	JQ	0.025	U	0.025	U	0.025	U	0.025	U	0.025	U	0.025	U	0.025	U	0.025	U	0.025	U	0.025	U	0.025	U	
Vanadium	7440-62-2	---	---	---	---	mg/L	0.025	U	0.025	U	0.025	U	0.018	JQ	0.025	U	0.025	U	0.025	U	0.0057	JQ	0.025	U	0.025	U	0.025	U	0.025	U	
Zinc	7440-66-6	0.21	0.19	2.3	2.9	mg/L	0.025	U	0.025	U	0.025	U	0.101		0.025	U	0.025	U	0.025	U	0.0659		0.025	U	0.025	U	0.025	U	0.025	U	
NWTPH-HCID																															
Gasoline	STL00228	---	---	---	---	mg/L	0.022	U	0.022	U	0.019	JL	0.044	U	0.022	U	0.02	U	0.021	U	0.024	U	0.022	U	0.023	U	0.021	U	0.13		
#2 Diesel (>C12-C24)	STL00096	---	---	---	---	mg/L	0.078		0.097		0.054	JL	0.14		0.29		0.26		0.3		0.31		0.29		0.31		0.13		0.39		
Motor Oil	STL00299	---	---	---	---	mg/L	0.21		0.18		0.097	UJL	0.75		0.68		0.51		0.62		0.78		0.56		0.68		0.26		1.2		
PCB																															
Aroclor 1016	12674-11-2	---	---	---	---	µg/L	0.408	U	0.392	U	0.394	U	0.451	U	0.426	U	0.416	U	0.418	U	0.417	U	0.41	U	0.457	U	0.38	U	0.38	U	
Aroclor 1221	11104-28-2	---	---	---	---	µg/L	0.612	U	0.588	U	0.591	U	0.677	U	0.639	U	0.624	U	0.627	U	0.625	U	0.615	U	0.685	U	0.57	U	0.569	U	
Aroclor 1232	11141-16-5	---	---	---	---	µg/L	0.612	U	0.588	U	0.591	U	0.677	U	0.639	U	0.624	U	0.627	U	0.625	U	0.615	U	0.685	U	0.57	U	0.569	U	
Aroclor 1242	53469-21-9	---	---	---	---	µg/L	0.612	U	0.588	U	0.591	U	0.677	U	0.639	U	0.624	U	0.627	U	0.625	U	0.615	U	0.685	U	0.57	U	0.569	U	
Aroclor 1248	12672-29-6	---	---	---	---	µg/L	0.612	U	0.588	U	0.591	U	0.677	U	0.639	U	0.624	U	0.627	U	0.625	U	0.615	U	0.685	U	0.57	U	0.569	U	
Aroclor 1254	11097-69-1	---	---	---	---	µg/L	0.612	U	0.588	U	0.591	U	0.677	U	0.639	U	0.624	U	0.627	U	0.625	U	0.615	U	0.685	U	0.57	U	0.569	U	
Aroclor 1260	11096-82-5	---	---	---	---	µg/L	0.408	U	0.392	U	0.394	U	0.451	U	0.426	U	0.416	U	0.418	U	0.417	U	0.41	U	0.457	U	0.38	U	0.38	U	
Pesticides																															
4,4'-DDD	72-54-8	---	---	0.000036	0.000036	µg/L	0.0204	U	0.0196	U	0.0197	U	0.0226	U	0.0213	U	0.0208	U	0.0209	U	0.0208	U	0.0205	U	0.0228	U	28.4	U	0.019	U	
4,4'-DDE	72-55-9	---	---	0.000051	0.000051	µg/L	0.0204	U	0.0196	U	0.0197	U	0.0226	U	0.0213	U	0.0208	U	0.0209	U	0.0208	U	0.0205	U	0.0228	U	28.4	U	0.019	U	
4,4'-DDT	50-29-3	1.1	0.001	0.00																											



Notes:

Aquatic Life Criteria - Freshwater (Acute) Screening Levels, WAC 173-201A-240  
Aquatic Life Criteria - Freshwater (Chronic) Screening Levels, WAC 173-201A-240  
Human Health Criteria for Consumption of Water & Organisms Screening Levels, WAC 173-201A-240  
Human Health Criteria for Consumption of Organisms Only Screening Levels, WAC 173-201A-240  
(1) Criteria is based on the filtered/dissolved fraction. The sample results are for the unfiltered/total fraction; these criteria are presented for comparison purposes only.  
(2) Criteria is hardness-dependent. The calcium and magnesium concentrations for the surface water samples were used to calculate a hardness value as CaCO3. The average calculated hardness value of 202.74 mg/L was used to calculate this water quality criteria.

Key:

426

= Detected results are bolded.

1,180

= Yellow highlights indicate results that exceed listed screening levels.

---

= Not Applicable

µg/L

= micrograms per liter

CAS

= Chemical Abstracts Service

H

= The sample result is biased high.

J

= The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

K

= The bias of the sample is not known.

L

= The sample result is biased low.

mg/L

= milligrams per liter

NWTPH-HCID

= Northwest Total Petroleum Hydrocarbons - Hydrocarbon Identification

Pesticides

= Organochlorine Pesticides, EPA Method 8081B by GC/ECD

PCBs

= Polychlorinated Biphenyls (PCBs), EPA Method 8082A by GC/ECD

Q

= Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.

Qual

= Qualifier

R

= The data is rejected and unusable. The analyte may or may not be present in the sample.

SVOCs

= Semi-Volatile Organic Compounds, EPA Method 8270D by GC/MS

Target Analyte List Metals

= Target Analyte List Metals, EPA Method 6010C by ICP-AES

U

= The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.

VOCs

= Volatile Organic Compounds, EPA Method 8260C by GC/MS

WAC

= Washington Administrative Code

Table B-7 2018 Surface Water Samples and Total Petroleum Hydrocarbon Results May Creek Landfill 15753 SE Renton Issaquah Rd Renton, WA																												
Chemical Analysis	Washington MTCA Method A <sup>(2)</sup>	Washington No Effects Concentration (NOEC) <sup>(3)</sup>	Date		12/11/2018		12/11/2018		12/11/2018		12/11/2018		12/11/2018		12/11/2018		12/11/2018		12/11/2018		12/11/2018		12/11/2018		12/11/2018		12/11/2018	
			EPA Sample Number		18111408		18111410		18111413		18111412		18111404		18111405		18111406		18111403		18111402		18111401		18111411		18111409	
			Field Sample Number		SW01		SW02		SW03		SW04		SW05		SW06		SW06 Duplicate		SW07		SW08		SW09		SW10		SW11	
			Units		Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual
NWTPH-HCID (1)																												
Gasoline	1.0	1.0	mg/L	0.022	U	0.022	U	0.019	JL	0.044	U	0.022	U	0.02	U	0.021	U	0.024	U	0.022	U	0.023	U	0.021	U	0.13		
#2 Diesel	0.5	0.15	mg/L	0.078		0.097		0.054	JL	0.14		0.29		0.26		0.3		0.31		0.29		0.31		0.13		0.39		
Motor Oil	0.5	0.15	mg/L	0.21		0.18		0.097	UJL	0.75		0.68		0.51		0.62		0.78		0.56		0.68		0.26		1.2		

Notes: (1) MTCA cleanup levels for total petroleum hydrocarbons (TPH) apply to the NWTPH-Gx and NWTPH-Dx analyses. They are presented for the NWTPH-HCID results for comparison purposes.

(2) Per WAC 173-340-730(3)(b)(iii)(C), the Method A groundwater cleanup levels from WAC 173-340-730, Table 720-1, are used here for surface water.

(3) Washington State Department of Ecology, February 2018, Environmental Effects-Based Concentrations for Total Petroleum Hydrocarbons (TPH): Toxicity in Marine Water and Freshwater, Publication No. 18-03-0002.

Yellow highlight exceeds the NOEC.

Orange highlight exceeds the MTCA Method A cleanup concentration.

426 = Detected results are bolded.

— = Not Applicable

µg/L = micrograms per liter

CAS = Chemical Abstracts Service

J = The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

L = The sample result is biased low.

mg/L = milligrams per liter

MTCA = (Washington State) Model Toxics Control Act

NOEC = No-Observed Effects Concentration

NWTPH-HCID = Northwest Total Petroleum Hydrocarbons - Hydrocarbon Identification

Qual = Qualifier

SVOCs = Semi-Volatile Organic Compounds, EPA Method 8270D by GC/MS

U = The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.

WAC = Washington Administrative Code

Table B-8 2018 Product and Waste Samples May Creek Landfill 15753 SE Renton Issaquah Rd Renton, WA												
Chemical Analysis	CAS Number	Date	---		12/11/2018		12/11/2018		12/12/2018		12/12/2018	
		EPA Sample Number	18111115		18110001		18110002		18110003		18110004	
		Field Sample Number	PD01		L6CS		L6SP		B301CP01		B302CP01	
		Units	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
VOCs												
1,1,1,2-Tetrachloroethane	630-20-6	µg/Kg	---	---	160	U	---	---	---	---	---	---
1,1,1-Trichloroethane	71-55-6	µg/Kg	---	---	160	U	---	---	---	---	---	---
1,1,2,2-Tetrachloroethane	79-34-5	µg/Kg	---	---	78	U	---	---	---	---	---	---
1,1,2-Trichloroethane	79-00-5	µg/Kg	---	---	78	U	---	---	---	---	---	---
1,1-Dichloroethane	75-34-3	µg/Kg	---	---	160	U	---	---	---	---	---	---
1,1-Dichloroethene	75-35-4	µg/Kg	---	---	63	JQ	---	---	---	---	---	---
1,1-Dichloropropene	563-58-6	µg/Kg	---	---	160	U	---	---	---	---	---	---
1,2,3-Trichlorobenzene	87-61-6	µg/Kg	---	---	580	U	---	---	---	---	---	---
1,2,3-Trichloropropane	96-18-4	µg/Kg	---	---	160	U	---	---	---	---	---	---
1,2,4-Trichlorobenzene	120-82-1	µg/Kg	---	---	230	U	---	---	---	---	---	---
1,2,4-Trimethylbenzene	95-63-6	µg/Kg	---	---	3600		---	---	---	---	---	---
1,2-Dibromo-3-Chloropropane	96-12-8	µg/Kg	---	---	970	U	---	---	---	---	---	---
1,2-Dibromoethane	106-93-4	µg/Kg	---	---	78	U	---	---	---	---	---	---
1,2-Dichlorobenzene	95-50-1	µg/Kg	---	---	160	U	---	---	---	---	---	---
1,2-Dichloroethane	107-06-2	µg/Kg	---	---	78	U	---	---	---	---	---	---
1,2-Dichloropropane	78-87-5	µg/Kg	---	---	78	U	---	---	---	---	---	---
1,3,5-Trimethylbenzene	108-67-8	µg/Kg	---	---	1100		---	---	---	---	---	---
1,3-Dichlorobenzene	541-73-1	µg/Kg	---	---	230	U	---	---	---	---	---	---
1,3-Dichloropropane	142-28-9	µg/Kg	---	---	230	U	---	---	---	---	---	---
1,4-Dichlorobenzene	106-46-7	µg/Kg	---	---	230	U	---	---	---	---	---	---
2,2-Dichloropropane	594-20-7	µg/Kg	---	---	160	UJL	---	---	---	---	---	---
2-Chlorotoluene	95-49-8	µg/Kg	---	---	160	U	---	---	---	---	---	---
4-Chlorotoluene	106-43-4	µg/Kg	---	---	160	U	---	---	---	---	---	---
4-Isopropyltoluene	99-87-6	µg/Kg	---	---	730		---	---	---	---	---	---
Benzene	71-43-2	µg/Kg	---	---	250		---	---	---	---	---	---
Bromobenzene	108-86-1	µg/Kg	---	---	390	U	---	---	---	---	---	---
Bromochloromethane	74-97-5	µg/Kg	---	---	160	U	---	---	---	---	---	---
Bromodichloromethane	75-27-4	µg/Kg	---	---		R	---	---	---	---	---	---
Bromoform	75-25-2	µg/Kg	---	---	780	U	---	---	---	---	---	---
Bromomethane	74-83-9	µg/Kg	---	---	780	U	---	---	---	---	---	---
Carbon tetrachloride	56-23-5	µg/Kg	---	---	78	U	---	---	---	---	---	---
Chlorobenzene	108-90-7	µg/Kg	---	---	160	U	---	---	---	---	---	---
Chloroethane	75-00-3	µg/Kg	---	---		R	---	---	---	---	---	---
Chloroform	67-66-3	µg/Kg	---	---	160	U	---	---	---	---	---	---
Chloromethane	74-87-3	µg/Kg	---	---	390	U	---	---	---	---	---	---
cis-1,2-Dichloroethene	156-59-2	µg/Kg	---	---	230	U	---	---	---	---	---	---
cis-1,3-Dichloropropene	10061-01-5	µg/Kg	---	---	78	U	---	---	---	---	---	---
Dibromochloromethane	124-48-1	µg/Kg	---	---	160	U	---	---	---	---	---	---
Dibromomethane	74-95-3	µg/Kg	---	---	230	U	---	---	---	---	---	---
Dichlorodifluoromethane	75-71-8	µg/Kg	---	---		R	---	---	---	---	---	---
Ethylbenzene	100-41-4	µg/Kg	---	---	1300		---	---	---	---	---	---
Hexachlorobutadiene	87-68-3	µg/Kg	---	---	580	U	---	---	---	---	---	---
Isopropylbenzene	98-82-8	µg/Kg	---	---	150	JQ	---	---	---	---	---	---
Methyl tert-butyl ether	1634-04-4	µg/Kg	---	---	160	U	---	---	---	---	---	---
Methylene Chloride	75-09-2	µg/Kg	---	---	970	U	---	---	---	---	---	---
m-Xylene & p-Xylene	179601-23-1	µg/Kg	---	---	5900		---	---	---	---	---	---
Naphthalene	91-20-3	µg/Kg	---	---	2100		---	---	---	---	---	---
n-Butylbenzene	104-51-8	µg/Kg	---	---	440	JQ	---	---	---	---	---	---
N-Propylbenzene	103-65-1	µg/Kg	---	---	550		---	---	---	---	---	---
o-Xylene	95-47-6	µg/Kg	---	---	2200		---	---	---	---	---	---
sec-Butylbenzene	135-98-8	µg/Kg	---	---	120	JQ	---	---	---	---	---	---
Styrene	100-42-5	µg/Kg	---	---	290		---	---	---	---	---	---
t-Butylbenzene	98-06-6	µg/Kg	---	---	160	U	---	---	---	---	---	---
Tetrachloroethene	127-18-4	µg/Kg	---	---	160	U	---	---	---	---	---	---
Toluene	108-88-3	µg/Kg	---	---	6200		---	---	---	---	---	---
trans-1,2-Dichloroethene	156-60-5	µg/Kg	---	---	230	U	---	---	---	---	---	---
trans-1,3-Dichloropropene	10061-02-6	µg/Kg	---	---	160	U	---	---	---	---	---	---
Trichloroethene	79-01-6	µg/Kg	---	---		R	---	---	---	---	---	---
Trichlorofluoromethane	75-69-4	µg/Kg	---	---	3000	JH	---	---	---	---	---	---
Vinyl chloride	75-01-4	µg/Kg	---	---	580	U	---	---	---	---	---	---
BTEX												
Benzene	71-43-2	µg/Kg	---	---	---	---	---	---		R		R
Ethylbenzene	100-41-4	µg/Kg	---	---	---	---	---	---	400	UJL	430	UJL
m-Xylene & p-Xylene	179601-23-1	µg/Kg	---	---	---	---	---	---	2000	UJL	2200	UJL
o-Xylene	95-47-6	µg/Kg	---	---	---	---	---	---	590	UJL	650	UJL
Toluene	108-88-3	µg/Kg	---	---	---	---	---	---	1500	UJL	1600	UJL
NWTPH-HCID												
#2 Diesel (>C12-C24)	STL00096	mg/Kg	---	---	---	---	270,000		---	---	---	---
Gasoline	STL00228	mg/Kg	---	---	---	---	82,000		---	---	---	---
Motor Oil	STL00299	mg/Kg	---	---	---	---	620,000		---	---	---	---
PCBs												
PCB-1016	12674-11-2	mg/Kg	0.86	U	0.612	U	3	U	---	---	---	---
PCB-1221	11104-28-2	mg/Kg	0.86	U	1.53	U	3	U	---	---	---	---
PCB-1232	11141-16-5	mg/Kg	0.86	U	0.612	U	3	U	---	---	---	---
PCB-1242	53469-21-9	mg/Kg	0.86	U	0.612	U	3	U	---	---	---	---
PCB-1248	12672-29-6	mg/Kg	0.86	U	0.612	U	3	UJL	---	---	---	---
PCB-1254	11097-69-1	mg/Kg	0.86	U	0.612	U	3	UJL	---	---	---	---
PCB-1260	11096-82-5	mg/Kg	0.86	U	0.612	U	3	U	---	---	---	---



Table B-8 2018 Product and Waste Samples May Creek Landfill 15753 SE Renton Issaquah Rd Renton, WA												
Chemical Analysis	CAS Number	Date	---		12/11/2018		12/11/2018		12/12/2018		12/12/2018	
		EPA Sample Number	18111115		18110001		18110002		18110003		18110004	
		Field Sample Number	PD01		L6CS		L6SP		B301CP01		B302CP01	
		Units	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
RCRA Metals - TCLP												
Arsenic	7440-38-2	mg/L	---	---	---	---	---	---	0.05	U	0.05	U
Barium	7440-39-3	mg/L	---	---	---	---	---	---	0.244		0.278	
Cadmium	7440-43-9	mg/L	---	---	---	---	---	---	0.005	U	0.005	U
Chromium	7440-47-3	mg/L	---	---	---	---	---	---	0.05	U	0.05	U
Lead	7439-92-1	mg/L	---	---	---	---	---	---	0.05	U	0.05	U
Mercury	7439-97-6	mg/L	---	---	---	---	---	---	0.0005	U	0.0005	U
Selenium	7782-49-2	mg/L	---	---	---	---	---	---	0.05	U	0.05	U
Silver	7440-22-4	mg/L	---	---	---	---	---	---	0.005	U	0.005	U
RCRA Metals - Soil												
Arsenic	7440-38-2	mg/Kg	---	---	14.7	JQ	---	---	---	---	---	---
Barium	7440-39-3	mg/Kg	---	---	125	JH	---	---	---	---	---	---
Cadmium	7440-43-9	mg/Kg	---	---	1.61	JQ	---	---	---	---	---	---
Chromium	7440-47-3	mg/Kg	---	---	34.3		---	---	---	---	---	---
Lead	7439-92-1	mg/Kg	---	---	93.5		---	---	---	---	---	---
Mercury	7439-97-6	mg/Kg	---	---	0.129	JQ	---	---	---	---	---	---
Selenium	7782-49-2	mg/Kg	---	---	3.84	U	---	---	---	---	---	---
Silver	7440-22-4	mg/Kg	---	---	38.4	UJK	---	---	---	---	---	---

Notes:

- 426** = Detected results are bolded.
- = Not Applicable
- µg/kg = micrograms per kilogram
- BTEX = Benzene, Toluene, Ethylbenzene, Xylenes
- CAS = Chemical Abstracts Service
- H = The sample result is biased high.
- J = The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
- K = The bias of the sample is not known.
- L = The sample result is biased low.
- mg/kg = milligrams per kilogram
- mg/L = milligrams per liter
- NWTPH-HCID = Northwest Total Petroleum Hydrocarbons - Hydrocarbon Identification
- PCBs = Polychlorinated Biphenyls (PCBs), EPA Method 8082A by GC/ECD
- Q = Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.
- Qual = Qualifier
- R = The data is rejected and unusable. The analyte may or may not be present in the sample.
- RCRA Metals = Resource Conservation and Recovery Act Metals, EPA Methods 6010C (ICP-AES) and 7471 (CVAA)
- U = The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- VOCs = Volatile Organic Compounds, EPA Method 8260C by GC/MS

<p><b>Table B-9</b>  <b>2018 Asbestos Samples</b>  <b>May Creek Landfill</b>  <b>15753 SE Renton Issaquah Rd</b>  <b>Renton, WA</b></p>								
EPA Sample Number	Field Sample Number	Location ID	Date	Time	Material	Friability	Material	Asbestos (Percent)
18111001	LF-01-BL	L3	11/19/2018	9:37	Brake Pad	Non-Friable, Poor Condition	Brake Pad	NAD
18111002	LF-02-BL	L3	11/19/2018	9:50	Gasket	Non-Friable, Poor Condition	Gasket	NAD
18111003	LF-03-BL	L3	11/19/2018	10:00	Roofing Material	Non-Friable, Poor Condition	Roofing Material	NAD
18111004	LF-04-BL	L3	11/19/2018	10:15	Roofing Material	Non-Friable, Poor Condition	Roofing Material	NAD
18111005 A	LF-05-BL	L4	11/19/2018	10:20	Wallboard	Friable, Poor Condition	Wallboard	<b>4 - 9% Chrysotile</b>
18111005 B								NAD
18111006	LF-06-BL	L4	11/19/2018	10:25	Roofing Material	Non-Friable, Poor Condition	Roofing Material	NAD
18111007	LF-07-BL	L4	11/19/2018	10:35	Roofing Material	Non-Friable, Poor Condition	Roofing Material	NAD
18111008	LF-08-BL	L2	11/19/2018	10:45	Roofing Material	Non-Friable, Poor Condition	Roofing Material	NAD
18111009	LF-09-BL	L2	11/19/2018	10:55	Roofing Material	Non-Friable, Poor Condition	Roofing Material	NAD
18111010	LF-10-BL	L1	11/19/2018	11:05	Roofing Material	Non-Friable, Poor Condition	Roofing Material	NAD
18111011	LF-11-BL	L5	11/19/2018	16:00	Roofing Material	Non-Friable, Poor Condition	Roofing Material	NAD
18111012	LF-12-BL	L5	11/19/2018	16:10	Roofing Material	Non-Friable, Poor Condition	Roofing Material	NAD
18111013	LF-13-BL	L5	11/19/2018	16:15	Roofing Material	Non-Friable, Poor Condition	Roofing Material	NAD
18111014	LF-14-BL	L6	11/19/2018	16:25	Thermal Sheet	Non-Friable, Poor Condition	Thermal Sheet	NAD
18111015	LF-15-BL	L6	11/19/2018	16:30	Roofing Material	Non-Friable, Poor Condition	Roofing Material	NAD
18111016 A	LF-16-BL	L6	11/19/2018	16:35	Flooring Tile	Non-Friable, Poor Condition	Flooring Tile	<b>16 - 20% Chrysotile</b>
18111016 B								<b>4 - 9% Chrysotile</b>
18111017	LF-17-BL	L6	11/20/2018	8:50	Electrical Wire Casing	Non-Friable, Poor Condition	Electrical Wire Casing	NAD
18111018	LF-18-BL	L6	11/20/2018	9:05	Boat Flashing	Non-Friable, Poor Condition	Boat Flashing	NAD
18111019	LF-19-BL	L6	11/20/2018	9:15	Floor Vinyl	Non-Friable, Poor Condition	Floor Vinyl	NAD
18111020	LF-20-BL	L6	11/20/2018	9:25	Roofing Material	Non-Friable, Poor Condition	Roofing Material	NAD
18111021	LF-21-BL	L6	11/20/2018	9:35	Roofing Material	Non-Friable, Poor Condition	Roofing Material	NAD
18111022	BA-01-BL	B2	11/20/2018	14:15	Roofing Material	Non-Friable, Poor Condition	Roofing Material	NAD
18111023	BA-02-BL	B2	11/20/2018	14:25	Thermal Sheet	Friable, Poor Condition	Thermal Sheet	NAD
18111024	BA-03-BL	B2	11/20/2018	14:30	Roofing Material	Non-Friable, Poor Condition	Roofing Material	NAD
18111025	BA-04-BL	B3	11/20/2018	14:45	Wallboard	Non-Friable, Poor Condition	Wallboard	NAD
18111026 A	BA-05-BL	B3	11/20/2018	14:55	Wallboard	Non-Friable, Poor Condition	Wallboard	NAD
18111026 B								NAD
18111027	BA-06-BL	B4	11/20/2018	15:00	Roofing Material	Non-Friable, Poor Condition	Roofing Material	NAD
18111028	WA-01-BL	W2	11/20/2018	15:35	Roofing Material	Non-Friable, Poor Condition	Roofing Material	NAD
18111029	WA-02-BL	W2	11/20/2018	15:40	Roofing Material	Non-Friable, Poor Condition	Roofing Material	NAD
18111030	WA-03-BL	W2	11/20/2018	15:45	Felt	Non-Friable, Fair Condition	Felt	NAD
18111031	BA-06-BL	B5	11/30/2018	14:05	Floor Vinyl	Non-Friable, Poor Condition	Floor Vinyl	NAD
18111032	BA-07-BL	B5	11/30/2018	14:10	Floor Vinyl	Non-Friable, Poor Condition	Floor Vinyl	NAD
18111033	BA-09-BL	B5	11/30/2018	14:07	Floor Vinyl	Non-Friable, Poor Condition	Floor Vinyl	NAD
18111034	BA-10-BL	B5	11/30/2018	14:03	Floor Vinyl	Non-Friable, Poor Condition	Floor Vinyl	NAD

**Notes:**  
NAD = No Asbestos Detected

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# **Appendix C**

## **Summer 2019 Analytical Results**

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Table C-1 2019 Sample and Analysis Summary May Creek Landfill 15753 SE Renton Issaquah Rd Renton, WA																					
Site Area	Decision Unit	Sample Number	Field Sample Number	Removal Status	Date	Matrix	Collection Method	Sample Interval (feet bgs)	Field NWTPH-Dx	NWTPH-Dx	NWTPH-Gx	PCBs	Pesticides	SVOCs	TAL Metals	VOCs	Dioxins and Furans	TCLP RCRA Metals	TCLP SVOCs	TCLP VOCs	Ignitability
Soil																					
Workshop Area	W2	19070001	W21901SS01	Excavated	7/10/2019	SS	Grab	0 - 0.5		X	X	X	X	X	X	X	X				
	W2	19070002	W21902SS01	Excavated	7/10/2019	SS	Grab	0 - 0.5		X	X	X	X	X	X	X					
	W2	19070003	W21903SS01	Excavated	7/10/2019	SS	Grab	0 - 0.5		X	X	X	X	X	X	X					
	W2	19070004	W21904SS01	Excavated	7/10/2019	SS	Grab	0 - 0.5		X	X	X	X	X	X	X					
Bus/RV Area	B1	19070101	B11901SS01	Excavated	7/10/2019	SS	Grab	0 - 0.5	X												
	B1	19070102	B11902SB01	Excavated	7/10/2019	SB	Grab	0.5 - 1	X	X											
	B1	19070103	B11903SB01	Excavated	7/10/2019	SB	Grab	0.5 - 1	X	X											
	B1	19070104	B11904SB01	Unexcavated	7/10/2019	SB	Grab	0.5 - 1	X	X											
	B1	19070105	B11905SB01	Excavated	7/10/2019	SB	Grab	0.5 - 1	X	X											
	B1	19070106	B11906SB01	Excavated	7/10/2019	SB	Grab	1 - 1.5	X	X											
Landfill Area	L2	19070107	L21901SB12	Unexcavated	7/10/2019	SB	Grab	1 - 1.5	X	X											
	L2	19070108	L21902SB12	Excavated	7/10/2019	SB	Grab	1 - 1.5	X	X											
	L2	19070109	L21903SB12	Excavated	7/10/2019	SB	Grab	1 - 1.5	X	X											
	L2	19070110	L21904SB12	Excavated	7/10/2019	SB	Grab	1 - 1.5	X	X											
Workshop Area	W2	19070111	W21905SB01	Excavated	7/11/2019	SB	Composite	0.5 - 1									X				
	W2	19070112	W21906SB01	Excavated	7/11/2019	SB	Grab	0.5 - 1	X	X					X						
	W2	19070113	W21907SB01	Excavated	7/11/2019	SB	Grab	0.5 - 1	X	X					X						
	W2	19070114	W21908SB01	Excavated	7/11/2019	SB	Grab	0.5 - 1	X	X					X						
	W2	19070115	W21909SB01	Excavated	7/11/2019	SB	Grab	0.5 - 1	X	X					X						
	W2	19070116	W21910SB01	Excavated	7/11/2019	SB	Grab	0.5 - 1	X	X					X						
	W1	19070117	W11901SB01	Unexcavated	7/11/2019	SB	Grab	0.5 - 1	X	X					X						
	W1	19070118	W11902SB01	Unexcavated	7/11/2019	SB	Grab	0.5 - 1	X	X					X						
	W1	19070119	W11903SB01	Unexcavated	7/11/2019	SB	Grab	0.5 - 1	X	X					X						
	W1	19070120	W11904SB01	Unexcavated	7/11/2019	SB	Grab	0.5 - 1	X	X					X						
	W1	19070121	W11905SB01	Unexcavated	7/11/2019	SB	Grab	0.5 - 1	X	X					X						
	W1	19070122	W11906SB01	Unexcavated	7/11/2019	SB	Grab	0.5 - 1	X	X					X						
	W1	19070123	W11907SB01	Unexcavated	7/11/2019	SB	Grab	0.5 - 1	X	X					X						
	W1	19070124	W11908SB01	Unexcavated	7/11/2019	SB	Grab	0.5 - 1	X	X					X						
Bus/RV Area	B3	19070125	B31901SB01	Excavated	7/12/2019	SB	Grab	0 - 1	X												
	B3	19070126	B31901SB23	Excavated	7/12/2019	SB	Grab	2 - 3	X												
	B3	19070127	B31902SB01	Excavated	7/12/2019	SB	Grab	0 - 1	X												
	B3	19070128	B31902SB12	Excavated	7/12/2019	SB	Grab	1 - 2	X												
	B3	19070129	B31903SB01	Excavated	7/12/2019	SB	Grab	0 - 1	X												
Landfill Area	L2	19070130	L21905SB23	Excavated	7/12/2019	SB	Grab	2 - 3	X	X											
	L2	19070131	L21906SB23	Excavated	7/12/2019	SB	Grab	2 - 3	X	X											
	L2	19070132	L21907SB23	Excavated	7/12/2019	SB	Grab	2 - 3	X	X											
	L2	19070133	Field Duplicate of L21907SB23	Excavated	7/12/2019	SB	Grab	2 - 3	X	X											



Table C-1 2019 Sample and Analysis Summary May Creek Landfill 15753 SE Renton Issaquah Rd Renton, WA																					
Site Area	Decision Unit	Sample Number	Field Sample Number	Removal Status	Date	Matrix	Collection Method	Sample Interval (feet bgs)	Field NWTPH-Dx	NWTPH-Dx	NWTPH-Gx	PCBs	Pesticides	SVOCs	TAL Metals	VOCs	Dioxins and Furans	TCLP RCRA Metals	TCLP SVOCs	TCLP VOCs	Ignitability
Bus/RV Area	B1	19070134	B11907SB12	Unexcavated	7/12/2019	SB	Grab	1 - 2	X	X											
	B1	19070135	B11908SB12	Unexcavated	7/12/2019	SB	Grab	1 - 2	X	X											
	B1	19070136	B11909SB23	Unexcavated	7/12/2019	SB	Grab	2 - 3	X	X											
	B1	19070137	B11910SB12	Unexcavated	7/12/2019	SB	Grab	1 - 2	X	X											
	B3	19070138	B31904SB23	Unexcavated	7/13/2019	SB	Grab	2 - 3	X	X	X										
	B3	19070139	B31905SB23	Unexcavated	7/13/2019	SB	Grab	2 - 3	X	X	X										
	B3	19070140	B31906SB23	Excavated	7/13/2019	SB	Grab	2 - 3	X	X	X										
Workshop Area	W2	19070141	W21911SB12	Unexcavated	7/15/2019	SB	Grab	1 - 2	X	X					X						
	W2	19070142	W21912SB12	Unexcavated	7/15/2019	SB	Grab	1 - 2	X	X					X						
	W2	19070143	W21913SB12	Unexcavated	7/15/2019	SB	Grab	1 - 2	X	X					X						
	W2	19070144	W21914SB12	Unexcavated	7/15/2019	SB	Grab	1 - 2	X	X					X						
	W2	19070145	W21915SB12	Unexcavated	7/15/2019	SB	Grab	1 - 2	X	X					X						
Bus/RV Area	B3	19070146	B31907SB12	Excavated	7/16/2019	SB	Grab	1 - 2		X	X	X	X	X	X	X		X	X	X	X
	B3	19070147	B31908SP	Excavated	7/16/2019	SP	Grab	---		X	X	X	X	X	X	X		X	X	X	X
	B3	19070148	B31909SB23	Excavated	7/17/2019	SB	Grab	2 - 3		X	X	X	X	X	X	X					
	B3	19070149	B31910SB12	Unexcavated	7/17/2019	SB	Grab	1 - 2		X	X	X	X	X	X	X					
	B3	19070150	B31911SB23	Excavated	7/17/2019	SB	Grab	2 - 3		X	X	X	X	X	X	X					
	B3	19070151	B31912SB12	Excavated	7/17/2019	SB	Grab	1 - 2		X	X	X	X	X	X	X					
	B3	19070152	Field Duplicate of B31911SB23	Excavated	7/17/2019	SB	Grab	2 - 3		X	X	X	X	X	X	X					
Landfill Area	L2	19070153	L21909SB34	Excavated	7/17/2019	SB	Grab	3 - 4		X											
	L2	19070154	L21910SB56	Excavated	7/17/2019	SB	Grab	5 - 6		X											
	L2	19070155	L21911SB23	Unexcavated	7/17/2019	SB	Grab	2 - 3		X											
Bus/RV Area	B3	19070156	B31914SB23	Unexcavated	7/25/2019	SB	Grab	2 - 3		X	X	X									
	B3	19070157	B31915SB23	Unexcavated	7/25/2019	SB	Grab	2 - 3		X	X	X									
	B3	19070158	B31916SB12	Unexcavated	7/25/2019	SB	Grab	1 - 2		X	X	X									
	B3	19070159	B31917SB34	Unexcavated	7/25/2019	SB	Grab	3 - 4		X	X	X									
	B3	19070160	B31918SB23	Excavated	7/25/2019	SB	Grab	2 - 3		X	X	X									
	B3	19070161	B31919SB23	Excavated	7/25/2019	SB	Grab	2 - 3		X	X	X									
	B3	19070162	B31920SB34	Unexcavated	7/25/2019	SB	Grab	3 - 4		X	X	X									
Landfill Area	L2	19070163	L21912SB23	Unexcavated	7/26/2019	SB	Grab	2 - 3		X											
	L2	19070164	L21912SB45	Unexcavated	7/26/2019	SB	Grab	4 - 5		X											
	L2	19070165	L21913SB23	Unexcavated	7/26/2019	SB	Grab	2 - 3		X											
	L2	19070166	L21913SB56	Unexcavated	7/26/2019	SB	Grab	5 - 6		X											

Table C-1 2019 Sample and Analysis Summary May Creek Landfill 15753 SE Renton Issaquah Rd Renton, WA																					
Site Area	Decision Unit	Sample Number	Field Sample Number	Removal Status	Date	Matrix	Collection Method	Sample Interval (feet bgs)	Field NWTPH-Dx	NWTPH-Dx	NWTPH-Gx	PCBs	Pesticides	SVOCs	TAL Metals	VOCs	Dioxins and Furans	TCLP RCRA Metals	TCLP SVOCs	TCLP VOCs	Ignitability
Bus/RV Area	B3	19070167	B31923SB23	Unexcavated	8/6/2019	SB	Grab	2 - 3		X		X									
	B3	19070168	B31924SB23	Unexcavated	8/6/2019	SB	Grab	2 - 3		X		X									
	B3	19070169	B31922SB23	Unexcavated	8/6/2019	SB	Grab	2 - 3		X		X									
	B3	19070170	B31921SB23	Unexcavated	8/6/2019	SB	Grab	2 - 3		X		X									
	B3	19070171	B31925SB12	Unexcavated	8/7/2019	SB	Grab	1 - 2		X		X		X		X					
	B3	19070172	Field Duplicate of B31925SB12	Unexcavated	8/7/2019	SB	Grab	1 - 2		X		X		X		X					
	B3	19070173	B31926SB12	Unexcavated	8/7/2019	SB	Grab	1 - 2		X		X		X		X					
	B3	19070174	B31927SB23	Unexcavated	8/7/2019	SB	Grab	2 - 3		X		X		X		X					
	B3	19070175	B31928SB12	Unexcavated	8/7/2019	SB	Grab	1 - 2		X		X		X		X					
	B3	19070176	B31929SB23	Unexcavated	8/7/2019	SB	Grab	2 - 3		X		X		X		X					
B3	19070177	B31930SB23	Unexcavated	8/7/2019	SB	Grab	2 - 3		X		X		X		X						
Workshop Area	W2	19070178	W21916SB01	Unexcavated	8/7/2019	SB	Grab	0.5 - 1		X	X	X	X	X	X	X	X				
	W2	19070179	W21917SB01	Unexcavated	8/7/2019	SB	Grab	0.5 - 1		X	X	X	X	X	X	X	X				
Soil - Boreholes																					
Support Zone	SZ	19070201	BHASB05-07	---	7/9/2019	SB	Discrete Interval	5 - 7		X	X	X	X	X	X	X	X				
	SZ	19070202	BHASB9.5-12	---	7/9/2019	SB	Discrete Interval	9.5 - 12		X	X	X	X	X	X	X	X				
Landfill Area	L1	19070203	BHCSB05-07	---	7/10/2019	SB	Discrete Interval	5 - 7		X	X	X	X	X	X	X	X				
	L1	19070204	BHCSB10-12	---	7/10/2019	SB	Discrete Interval	10 - 12		X	X	X	X	X	X	X	X				
Bus/RV Area	B1	19070205	BHBSB10-12	---	7/10/2019	SB	Discrete Interval	10 - 12		X	X	X	X	X	X	X	X				
	B1	19070206	BHBSB15-17	---	7/10/2019	SB	Discrete Interval	15 - 17		X	X	X	X	X	X	X	X				
	B3	19070207	BHDSB0-2	---	7/11/2019	SB	Discrete Interval	0 - 2		X	X	X	X	X	X	X	X				
	B3	19070208	BHDSB2.5-4.5	---	7/11/2019	SB	Discrete Interval	2.5 - 4.5		X	X	X	X	X	X	X	X				
	B3	19070209	BHDSB12.5-14.5	---	7/11/2019	SB	Discrete Interval	12.5 - 14.5		X	X	X	X	X	X	X	X				
	B4	19070210	BHFSB10-12	---	7/12/2019	SB	Discrete Interval	10 - 12		X	X	X	X	X	X	X	X				
	B4	19070211	BHFSF12.5-14.5	---	7/12/2019	SB	Discrete Interval	12.5 - 14.5		X	X	X	X	X	X	X	X				
	B4	19070212	BHESB10-12	---	7/12/2019	SB	Discrete Interval	10 - 12		X	X	X	X	X	X	X	X				
B4	19070213	BHESB15-17	---	7/12/2019	SB	Discrete Interval	15 - 17		X	X	X	X	X	X	X	X					
Workshop Area	W2	19070214	BHGSB2.5-4.5	---	7/13/2019	SB	Discrete Interval	2.5 - 4.5		X	X	X	X	X	X	X	X				
	W2	19070215	BHGSB7.5-9.5	---	7/13/2019	SB	Discrete Interval	7.5 - 9.5		X	X	X	X	X	X	X	X				

Table C-1 2019 Sample and Analysis Summary May Creek Landfill 15753 SE Renton Issaquah Rd Renton, WA																					
Site Area	Decision Unit	Sample Number	Field Sample Number	Removal Status	Date	Matrix	Collection Method	Sample Interval (feet bgs)	Field NWTPH-Dx	NWTPH-Dx	NWTPH-Gx	PCBs	Pesticides	SVOCs	TAL Metals	VOCs	Dioxins and Furans	TCLP RCRA Metals	TCLP SVOCs	TCLP VOCs	Ignitability
Groundwater - Monitoring Wells																					
Support Zone	SZ (MW-01)	19070401	MW-01	---	7/23/2019	GW	Peristaltic	---		X	X	X	X	X	X	X					
Landfill Area	L1 (MW-02)	19070402	MW-02	---	7/23/2019	GW	Peristaltic	---		X	X	X	X	X	X	X					
	L1 (MW-02)	19070403	Duplicate of MW-02	---	7/23/2019	GW	Peristaltic	---		X	X	X	X	X	X	X					
Bus/RV Area	B3 (MW-04)	19070404	MW-04	---	7/23/2019	GW	Peristaltic	---		X	X	X	X	X	X	X					
	B4 (MW-05)	19070405	MW-05	---	7/23/2019	GW	Peristaltic	---		X	X	X	X	X	X	X					
	B4 (MW-06)	19070406	MW-06	---	7/23/2019	GW	Peristaltic	---		X	X	X	X	X	X	X					
	B1 (MW-03)	19070407	MW-03	---	7/24/2019	GW	Bailer	---		X	X	X	X	X	X	X					
Workshop Area	W2 (MW-07)	19070408	MW-07	---	7/24/2019	GW	Peristaltic	---		X	X	X	X	X	X	X					

Notes:

- = Not Applicable
- bgs = below ground surface
- Field NWTPH-Dx = Northwest Total Petroleum Hydrocarbons - Extended Diesel Range (Semi-volatile Petroleum Products) performed by EPA START staff in Seattle
- GW = Groundwater
- Dioxins and Furans = Dioxins/Furans, SW846 Method 8290A
- Ignitability = Setaflash closed-cup method for determining ignitability, EPA Method 1020A
- NWTPH-Dx = Northwest Total Petroleum Hydrocarbons - Extended Diesel Range (Semi-volatile Petroleum Products)
- NWTPH-Gx = Northwest Total Petroleum Hydrocarbons - Extended Gasoline Range (Volatile Petroleum Products)
- Pesticides = Organochlorine Pesticides, EPA Method 8081B by GC/ECD
- PCBs = Polychlorinated Biphenyls (PCBs), EPA Method 8082A by GC/ECD
- RCRA Metals = Resource Conservation and Recovery Act Metals, EPA Methods 6010C (ICP-AES) and 7471 (CVAA)
- RV = Recreational Vehicle
- SB = Subsurface Soil
- SP = Stockpile Material
- SS = Surface Soil
- SVOCs = Semi-Volatile Organic Compounds, EPA Method 8270D by GC/MS
- SW = Surface Water
- SZ = Support Zone
- TAL Metals = Target Analyte List Metals, EPA Method 6010C (ICP-AES) and 7471 (CVAA)
- TCLP = Toxicity Characteristic Leaching Procedure
- VOCs = Volatile Organic Compounds, EPA Method 8260C by GC/MS



Table C-2 2019 W1 Soil Analytical Results May Creek Landfill 15753 SE Renton Issaquah Rd Renton, WA																
Group	Chemical Analysis	CAS Number	EPA RSL	EPA RML	WA MTCA Method A	WA MTCA Method B (Noncancer, Direct Contact)	WA MTCA Method B (Cancer, Direct Contact)	Date:	7/11/2019	7/11/2019	7/11/2019	7/11/2019	7/11/2019	7/11/2019	7/11/2019	7/11/2019
								Sampling Depth (feet):	0.5 - 1	0.5 - 1	0.5 - 1	0.5 - 1	0.5 - 1	0.5 - 1	0.5 - 1	0.5 - 1
								EPA Sample Number:	19070117	19070118	19070119	19070120	19070121	19070122	19070123	19070124
								Location:	W11901SB01	W11902SB01	W11903SB01	W11904SB01	W11905SB01	W11906SB01	W11907SB01	W11908SB01
								Removal Status:	Unexcavated	Unexcavated	Unexcavated	Unexcavated	Unexcavated	Unexcavated	Unexcavated	Unexcavated
								Units	Result	Result	Result	Result	Result	Result	Result	Result
Dx	Diesel	STL00258	---	---	2,000	---	---	mg/Kg	12 U	13 U	8.4 JQ	14	16	9.7 JQ	24	71
Dx	Motor Oil	STL00383	---	---	2,000	---	---	mg/Kg	19 JQ	9.0 JQ	45	37	56	20 JQ	52	330
Metals	Cadmium	7440-43-9	71	210	2	80	---	mg/Kg	0.93 U	0.89 U	0.28 JQ	0.40 JQ	0.93 U	0.93 U	0.94 U	0.24 JQ
Metals	Lead	7439-92-1	400	400	250	---	---	mg/Kg	6.4 JK	3.9 JK	47 JK	12 JK	5.8 JK	5.5 JK	12 JK	47 JK

Notes:

1,180 = Bold text indicates a detected result.

--- = Not Applicable

CAS = Chemical Abstracts Service

Dx = Northwest Total Petroleum Hydrocarbons - Extended Diesel Range (Semi-volatile Petroleum Products)

EPA RML = Environmental Protection Agency (EPA) Removal Management Levels (RML), 40 CFR Part 300, November 2019

EPA RSL = Environmental Protection Agency (EPA) Regional Screening Levels (RSL), 40 CFR Part 300, November 2019

J = The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

K = The bias of the sample is not known.

Metals = Target Analyte List Metals, EPA Method 6010C (ICP-AES) and 7471 (CVAA)

mg/Kg = milligrams per kilogram

Q = Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.

U = The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.

WA MTCA Method A = Washington State (WA) Model Toxics Control Act (MTCA) Cleanup Regulation Method A (unrestricted land use) value from the Cleanup and Risk Calculations tables (CLARC), chapter 173-340 WAC, August 2015

WA MTCA Method B = Washington State (WA) Model Toxics Control Act (MTCA) Cleanup Regulation Method B (unrestricted land use) value from the Cleanup and Risk Calculations tables (CLARC), chapter 173-340 WAC, August 2015

Table C-3 2019 W2 Shed Soil Analytical Results May Creek Landfill 15753 SE Renton Issaquah Rd Renton, WA																	
Group	Chemical Analysis	CAS Number	EPA RSL	EPA RML	WA MTCA Method A	WA MTCA Method B (Noncancer, Direct Contact)	WA MTCA Method B (Cancer, Direct Contact)	Date:	7/11/2019	7/11/2019	7/11/2019	7/11/2019	7/11/2019	7/15/2019	7/15/2019	7/15/2019	7/15/2019
								Sampling Depth (feet):	0.5 - 1	0.5 - 1	0.5 - 1	0.5 - 1	0.5 - 1	1 - 2	1 - 2	1 - 2	1 - 2
								EPA Sample Number:	19070112	19070113	19070114	19070115	19070116	19070141	19070142	19070143	19070144
								Location:	W21906SB01	W21907SB01	W21908SB01	W21909SB01	W21910SB01	W21911SB12	W21912SB12	W21913SB12	W21914SB12
								Removal Status:	Excavated	Excavated	Excavated	Excavated	Excavated	Unexcavated	Unexcavated	Unexcavated	Unexcavated
								Units	Result	Result	Result	Result	Result	Result	Result	Result	Result
Dx	Diesel	STL00258	---	---	2,000	---	---	mg/Kg	240	60 JH	51 JK	210	110 JH	33	21	69	64
Dx	Motor Oil	STL00383	---	---	2,000	---	---	mg/Kg	630	430	270	530	570	180	120	380	310
Metals	Cadmium	7440-43-9	71	210	2	80	---	mg/Kg	0.93 U	0.82 U	0.85 U	0.93 U	0.93 U	0.064 JQ	0.92 U	0.086 JQ	0.082 JQ
Metals	Lead	7439-92-1	400	400	250	---	---	mg/Kg	24 JK	28 JK	18 JK	25 JK	51 JK	36	26	79	31

Notes:

1,180 = Bold text indicates a detected result.

--- = Not Applicable

CAS = Chemical Abstracts Service

Dx = Northwest Total Petroleum Hydrocarbons - Extended Diesel Range (Semi-volatile Petroleum Products)

EPA RML = Environmental Protection Agency (EPA) Removal Management Levels (RML), 40 CFR Part 300, November 2019

EPA RSL = Environmental Protection Agency (EPA) Regional Screening Levels (RSL), 40 CFR Part 300, November 2019

H = The sample result is biased high

J = The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

K = The bias of the sample is not known.

Metals = Target Analyte List Metals, EPA Method 6010C (ICP-AES) and 7471 (CVAA)

mg/Kg = milligrams per kilogram

Q = Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.

U = The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.

WA MTCA Method A = Washington State (WA) Model Toxics Control Act (MTCA) Cleanup Regulation Method A (unrestricted land use) value from the Cleanup and Risk Calculations tables (CLARC), chapter 173-340 WAC, August 2015

WA MTCA Method B = Washington State (WA) Model Toxics Control Act (MTCA) Cleanup Regulation Method B (unrestricted land use) value from the Cleanup and Risk Calculations tables (CLARC), chapter 173-340 WAC, August 2015

Table C-4 2019 W2 Stockpile Area Soil Analytical Results May Creek Landfill 15753 SE Renton Issaquah Rd Renton, WA														
Group	Chemical Analysis	CAS Number	EPA RSL	EPA RML	WA MTCA Method A	WA MTCA Method B (Noncancer, Direct Contact)	WA MTCA Method B (Cancer, Direct Contact)	Date:	7/10/2019	7/10/2019	7/10/2019	7/10/2019	8/7/2019	8/7/2019
								Sampling Depth (feet):	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0.5 - 1	0.5 - 1
								EPA Sample Number:	19070001	19070002	19070003	19070004	19070178	19070179
								Location:	W21901SS01	W21902SS01	W21903SS01	W21904SS01	W21916SB01	W21917SB01
								Removal Status:	Excavated	Excavated	Excavated	Excavated	Unexcavated	Unexcavated
								Units	Result	Result	Result	Result	Result	Result
Dx	Diesel	STL00163	---	---	2,000	--	--	mg/Kg	250 JQ	65 JQ	2,100 JL	77 JL	31 JQ	53
Dx	Motor Oil	STL00299	---	---	2,000	--	--	mg/Kg	1,900 JL	560 JL	8,100 JL	630 JL	230	270
Gx	Gasoline	STL00228	---	---	30	--	--	mg/Kg	7.1 JL	4.3 UJL	2.3 JQ	94 JL	1.8 JQ	2.7 JQ
Metals	Aluminum	7429-90-5	77,000	230,000	--	80,000	--	mg/Kg	7,800	11,000	12,000	11,000	11,000	11,000
Metals	Antimony	7440-36-0	31	94	--	32	--	mg/Kg	7.7	1.7 JQ	3.5	1.6 JQ	1.6 JQ	1.2 JQ
Metals	Arsenic	7440-38-2	0.68	68	20	24	0.67	mg/Kg	19	6.7	14	6.5	5.7	5.4
Metals	Barium	7440-39-3	15,000	46,000	--	16,000	--	mg/Kg	45	50	54	52	59	59
Metals	Beryllium	7440-41-7	160	470	--	160	--	mg/Kg	0.69 U	0.68 U	0.73 U	0.70 U	0.70 U	0.71 U
Metals	Cadmium	7440-43-9	71	210	2	80	--	mg/Kg	0.95	0.68 U	1.2	0.70 U	0.70 U	0.71 U
Metals	Calcium	7440-70-2	---	---	---	---	---	mg/Kg	5,800	5,800	7,700	5,900	5,700	4,800
Metals	Chromium	7440-47-3	---	---	2,000	120,000	--	mg/Kg	25	26	33	32	27	25
Metals	Cobalt	7440-48-4	23	70	--	---	--	mg/Kg	6.5	7.9	12	9.1	6.7	6.7
Metals	Copper	7440-50-8	3,100	9,400	--	3,200	--	mg/Kg	51	37	270	89	16	16
Metals	Iron	7439-89-6	55,000	160,000	--	56,000	--	mg/Kg	15,000	17,000	27,000	20,000	16,000	15,000
Metals	Lead	7439-92-1	400	400	250	--	--	mg/Kg	63	71	120	63	36	30
Metals	Magnesium	7439-95-4	---	---	---	---	--	mg/Kg	4,200	5,200	10,000	6,400	4,900	4,600
Metals	Manganese	7439-96-5	1,800	5,500	--	3,700	--	mg/Kg	240	310	440	340	270	240
Metals	Mercury	7439-97-6	11,000	33,000	2,000	--	--	ug/Kg	71 JL	43 JL	54 JL	48 JL	15 JQ	31
Metals	Nickel	7440-02-0	1,500	4,600	--	1,600	--	mg/Kg	23	28	27	27	32	30
Metals	Potassium	7440-09-7	---	---	---	---	--	mg/Kg	470	630	350	660	610	630
Metals	Selenium	7782-49-2	390	1,200	--	400	--	mg/Kg	0.28 JQ	3.4 U	3.6 U	3.5 U	3.5 U	3.6 U
Metals	Silver	7440-22-4	390	1,200	--	400	--	mg/Kg	0.42 JQ	1.7 U	0.45 JQ	1.7 U	1.8 U	1.8 U
Metals	Sodium	7440-23-5	---	---	---	---	--	mg/Kg	260	300	350	360	260	240
Metals	Thallium	7440-28-0	0.78	2.3	--	0.8	--	mg/Kg	3.5 U	3.4 U	3.6 U	3.5 U	3.5 U	3.6 U
Metals	Vanadium	7440-62-2	390	1,200	--	400	--	mg/Kg	28	38	56	42	37	35
Metals	Zinc	7440-66-6	23,000	70,000	--	24,000	--	mg/Kg	190	87	200	110	45	45
PCBs	PCB-1016	12674-11-2	4,100	12,000	--	5,600	14,000	ug/Kg	21 UJL	19 UJL	22 UJL	21 UJL	60 U	60 U
PCBs	PCB-1221	11104-28-2	200	20,000	--	---	--	ug/Kg	21 UJL	19 UJL	22 UJL	21 UJL	60 U	60 U
PCBs	PCB-1232	11141-16-5	170	17,000	--	---	--	ug/Kg	21 UJL	19 UJL	22 UJL	21 UJL	60 U	60 U
PCBs	PCB-1242	53469-21-9	230	23,000	--	---	--	ug/Kg	21 UJL	19 UJL	22 UJL	21 UJL	60 U	60 U
PCBs	PCB-1248	12672-29-6	230	23,000	--	1,600	--	ug/Kg	21 UJL	19 UJL	22 UJL	21 UJL	60 U	60 U
PCBs	PCB-1254	11097-69-1	240	3,500	--	---	500	ug/Kg	21 UJL	19 UJL	22 UJL	390 JK	60 U	12 JQ
PCBs	PCB-1260	11096-82-5	240	24,000	--	---	500	ug/Kg	11 JQ	19 UJL	8.4 JQ	21 UJL	60 U	60 U
PCBs	Total PCB	1336-36-3	230	23,000	1,000	--	500	ug/Kg	11 JQ	---	8.4 JK	390 JK	---	12 JQ
Pesticides	4,4'-DDD	72-54-8	1,900	5,700	--	2,400	4,200	ug/kg	4.1 UJL	1.9 UJL	2.2 UJL	4.1 UJL	0.96 JQ	2.0 U
Pesticides	4,4'-DDE	72-55-9	2,000	70,000	--	24,000	2,900	ug/kg	4.1 UJL	1.9 UJL	2.2 UJL	4.1 UJL	2.0 U	2.0 U
Pesticides	4,4'-DDT	50-29-3	1,900	110,000	3,000	40,000	2,900	ug/kg	4.1 UJL	1.9 UJL	2.2 UJL	4.1 UJL	2.0 UJL	2.0 UJL
Pesticides	Aldrin	309-00-2	39	3,900	--	2,400	59	ug/kg	6.2 UJL	2.8 UJL	3.3 UJL	6.2 UJL	3.0 U	3.0 U



<p><b>Table C-4</b>  <b>2019 W2 Stockpile Area Soil Analytical Results</b>  <b>May Creek Landfill</b>  <b>15753 SE Renton Issaquah Rd</b>  <b>Renton, WA</b></p>														
Group	Chemical Analysis	CAS Number	EPA RSL	EPA RML	WA MTCA Method A	WA MTCA Method B (Noncancer, Direct Contact)	WA MTCA Method B (Cancer, Direct Contact)	Date:	7/10/2019	7/10/2019	7/10/2019	7/10/2019	8/7/2019	8/7/2019
								Sampling Depth (feet):	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0.5 - 1	0.5 - 1
								EPA Sample Number:	19070001	19070002	19070003	19070004	19070178	19070179
								Location:	W21901SS01	W21902SS01	W21903SS01	W21904SS01	W21916SB01	W21917SB01
								Removal Status:	Excavated	Excavated	Excavated	Excavated	Unexcavated	Unexcavated
								Units	Result	Result	Result	Result	Result	Result
Pesticides	alpha-BHC	319-84-6	86	8,600	---	640,000	160	ug/kg	4.1 UJL	1.9 UJL	2.2 UJL	4.1 UJL	2.0 U	2.0 U
Pesticides	beta-BHC	319-85-7	300	30,000	---	---	560	ug/kg	10 UJL	4.6 UJL	5.6 UJL	10 UJL	5.0 UJL	5.0 UJL
Pesticides	cis-Chlordane	5103-71-9	---	---	---	---	---	ug/kg	4.1 UJL	1.9 UJL	2.2 UJL	4.1 UJL	2.0 UJL	2.0 UJL
Pesticides	delta-BHC	319-86-8	---	---	---	---	---	ug/kg	6.2 UJL	2.8 UJL	3.3 UJL	6.2 UJL	3.0 UJL	3.0 UJL
Pesticides	Dieldrin	60-57-1	34	3,400	---	4,000	63	ug/kg	4.1 UJL	1.9 UJL	2.2 UJL	4.1 UJL	2.0 U	2.0 U
Pesticides	Endosulfan I	959-98-8	---	---	---	---	---	ug/kg	4.1 UJL	1.9 UJL	2.2 UJL	4.1 UJL	2.0 UJL	2.0 UJL
Pesticides	Endosulfan II	33213-65-9	---	---	---	---	---	ug/kg	4.1 UJL	1.9 UJL	2.2 UJL	4.1 UJL	2.0 UJL	2.0 UJL
Pesticides	Endosulfan sulfate	1031-07-8	380,000	1,100,000	---	480,000	---	ug/kg	4.1 UJL	1.9 UJL	2.2 UJL	4.1 UJL	2.0 UJL	2.0 UJL
Pesticides	Endrin	72-20-8	19,000	57,000	---	24,000	---	ug/kg	4.1 UJL	1.9 UJL	2.2 UJL	4.1 UJL	2.0 U	2.0 U
Pesticides	Endrin aldehyde	7421-93-4	---	---	---	---	---	ug/kg	41 UJL	19 UJL	22 UJL	41 UJL	20 UJL	20 UJL
Pesticides	Endrin ketone	53494-70-5	---	---	---	---	---	ug/kg	4.1 UJL	1.9 UJL	2.2 UJL	4.1 UJL	2.0 UJL	2.0 UJL
Pesticides	gamma-BHC (Lindane)	58-89-9	570	57,000	10	24,000	910	ug/kg	4.1 UJL	1.9 UJL	2.2 UJL	4.1 UJL	2.0 U	2.0 U
Pesticides	Heptachlor	76-44-8	130	13,000	---	40,000	220	ug/kg	6.2 UJL	2.8 UJL	3.3 UJL	6.2 UJL	3.0 UJL	3.0 UJL
Pesticides	Heptachlor epoxide	1024-57-3	70	3,100	---	1,000	110	ug/kg	6.2 UJL	2.8 UJL	3.3 UJL	6.2 UJL	3.0 UJL	3.0 UJL
Pesticides	Methoxychlor	72-43-5	320,000	950,000	---	400,000	---	ug/kg	21 UJL	9.3 UJL	11 UJL	21 UJL	10 UJL	10 UJL
Pesticides	Toxaphene	8001-35-2	490	17,000	---	7,200	910	ug/kg	210 UJL	93 UJL	110 UJL	210 UJL	100 U	100 U
Pesticides	trans-Chlordane	5103-74-2	---	---	---	---	---	ug/kg	6.2 UJL	2.8 UJL	3.3 UJL	6.2 UJL	3.0 UJL	3.0 UJL
SVOCs	1,2,4-Trichlorobenzene	120-82-1	24,000	170,000	---	800,000	34,000	ug/Kg	53 UJL	53 UJL	52 UJL	53 UJL	55 U	52 U
SVOCs	1,2-Dichlorobenzene	95-50-1	1,800,000	5,400,000	---	7,200,000	---	ug/Kg	53 UJL	53 UJL	52 UJL	53 UJL	55 U	52 U
SVOCs	1,3-Dichlorobenzene	541-73-1	---	---	---	---	---	ug/Kg	53 UJL	53 UJL	52 UJL	53 UJL	55 U	52 U
SVOCs	1,4-Dichlorobenzene	106-46-7	2,600	260,000	---	5,600,000	190,000	ug/Kg	53 UJL	53 UJL	52 UJL	53 UJL	55 U	52 U
SVOCs	1-Methylnaphthalene	90-12-0	18,000	1,800,000	---	5,600,000	34,000	ug/kg	<b>6.4 JQ</b>	<b>9.2 JQ</b>	<b>140 JL</b>	32 UJL	33 U	31 U
SVOCs	2,4,5-Trichlorophenol	95-95-4	6,300,000	19,000,000	---	8,000,000	---	ug/Kg	210 UJL	210 UJL	210 UJL	210 UJL	220 U	210 U
SVOCs	2,4,6-Trichlorophenol	88-06-2	49,000	190,000	---	80,000	91,000	ug/Kg	160 UJL	160 UJL	160 UJL	160 UJL	160 U	160 U
SVOCs	2,4-Dichlorophenol	120-83-2	190,000	570,000	---	240,000	---	ug/Kg	110 UJL	110 UJL	100 UJL	110 UJL	110 U	100 U
SVOCs	2,4-Dimethylphenol	105-67-9	1,300,000	3,800,000	---	1,600,000	---	ug/Kg	110 UJL	110 UJL	100 UJL	110 UJL	110 U	100 U
SVOCs	2,4-Dinitrophenol	51-28-5	130,000	380,000	---	160,000	---	ug/Kg	1,100 UJL	1,100 UJL	1,000 UJL	1,100 UJL	1,100 U	1,000 U
SVOCs	2,4-Dinitrotoluene	121-14-2	1,700	170,000	---	160,000	3,200	ug/Kg	210 UJL	210 UJL	210 UJL	210 UJL	220 U	210 U
SVOCs	2,6-Dinitrotoluene	606-20-2	360	36,000	---	24,000	670	ug/Kg	160 UJL	160 UJL	160 UJL	160 UJL	160 U	160 U
SVOCs	2-Chloronaphthalene	91-58-7	4,800,000	14,000,000	---	6,400,000	---	ug/Kg	26 UJL	27 UJL	26 UJL	27 UJL	27 U	26 U
SVOCs	2-Chlorophenol	95-57-8	390,000	1,200,000	---	400,000	---	ug/Kg	210 UJL	210 UJL	210 UJL	210 UJL	220 U	210 U
SVOCs	2-Methylnaphthalene	91-57-6	240,000	720,000	---	320,000	---	ug/Kg	<b>12 JQ</b>	53 UJL	<b>210 JL</b>	53 UJL	55 U	52 U
SVOCs	2-Methylphenol	95-48-7	3,200,000	9,500,000	---	4,000,000	---	ug/Kg	160 UJL	160 UJL	160 UJL	160 UJL	160 U	160 U
SVOCs	2-Nitroaniline	88-74-4	630,000	1,900,000	---	800,000	---	ug/Kg	110 UJL	110 UJL	100 UJL	110 UJL	110 U	100 U
SVOCs	2-Nitrophenol	88-75-5	---	---	---	---	---	ug/Kg	210 UJL	210 UJL	210 UJL	210 UJL	220 U	210 U
SVOCs	3 & 4 Methylphenol	15831-10-4	---	---	---	---	---	ug/kg	210 UJL	210 UJL	210 UJL	210 UJL	220 U	210 U
SVOCs	3,3'-Dichlorobenzidine	91-94-1	1,200	120,000	---	---	2,200	ug/Kg	420 UJL	430 UJL	420 UJL	430 UJL	440 U	420 U
SVOCs	3-Nitroaniline	99-09-2	---	---	---	---	---	ug/Kg	210 UJL	210 UJL	210 UJL	210 UJL	220 U	210 U

Table C-4 2019 W2 Stockpile Area Soil Analytical Results May Creek Landfill 15753 SE Renton Issaquah Rd Renton, WA														
Group	Chemical Analysis	CAS Number	EPA RSL	EPA RML	WA MTCA Method A	WA MTCA Method B (Noncancer, Direct Contact)	WA MTCA Method B (Cancer, Direct Contact)	Date:	7/10/2019	7/10/2019	7/10/2019	7/10/2019	8/7/2019	8/7/2019
								Sampling Depth (feet):	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0.5 - 1	0.5 - 1
								EPA Sample Number:	19070001	19070002	19070003	19070004	19070178	19070179
								Location:	W21901SS01	W21902SS01	W21903SS01	W21904SS01	W21916SB01	W21917SB01
								Removal Status:	Excavated	Excavated	Excavated	Excavated	Unexcavated	Unexcavated
								Units	Result	Result	Result	Result	Result	Result
SVOCs	4,6-Dinitro-2-methylphenol	534-52-1	5,100	15,000	---	6,400	---	ug/Kg	1,100 UJL	1,100 UJL	1,000 UJL	1,100 UJL	1,100 U	1,000 U
SVOCs	4-Bromophenyl phenyl ether	101-55-3	---	---	---	---	---	ug/Kg	210 UJL	210 UJL	210 UJL	210 UJL	220 U	210 U
SVOCs	4-Chloro-3-methylphenol	59-50-7	6,300,000	19,000,000	---	8,000,000	---	ug/Kg	160 UJL	160 UJL	160 UJL	160 UJL	160 U	160 U
SVOCs	4-Chloroaniline	106-47-8	2,700	270,000	---	320,000	5,000	ug/Kg	1,600 UJL	1,600 UJL	1,600 UJL	1,600 UJL	1,600 U	1,600 U
SVOCs	4-Chlorophenyl phenyl ether	7005-72-3	---	---	---	---	---	ug/Kg	210 UJL	210 UJL	210 UJL	210 UJL	220 U	210 U
SVOCs	4-Nitroaniline	100-01-6	27,000	760,000	---	---	---	ug/Kg	160 UJL	160 UJL	160 UJL	160 UJL	160 U	160 U
SVOCs	4-Nitrophenol	100-02-7	---	---	---	---	---	ug/Kg	1,600 UJL	1,600 UJL	1,600 UJL	1,600 UJL	1,600 U	1,600 U
SVOCs	Acenaphthene	83-32-9	3,600,000	11,000,000	---	4,800,000	---	ug/Kg	26 UJL	90 JL	26 UJL	27 UJL	27 U	26 U
SVOCs	Acenaphthylene	208-96-8	---	---	---	---	---	ug/Kg	26 UJL	18 JQ	26 UJL	27 UJL	27 U	26 U
SVOCs	Anthracene	120-12-7	18,000,000	54,000,000	---	24,000,000	---	ug/Kg	26 UJL	660 JL	26 UJL	27 UJL	27 U	26 U
SVOCs	Benzo[a]anthracene	56-55-3	1,100	110,000	---	---	---	ug/Kg	26 UJL	2,500 JL	26 UJL	27 UJL	27 U	26 U
SVOCs	Benzo[a]pyrene	50-32-8	110	11,000	100	24,000	190	ug/Kg	28 JQ	1,500 JL	63 UJL	64 UJL	66 U	63 U
SVOCs	Benzo[b]fluoranthene	205-99-2	1,100	110,000	---	---	---	ug/Kg	38 JL	2,000 JL	26 UJL	15 JQ	27 U	26 U
SVOCs	Benzo[g,h,i]perylene	191-24-2	---	---	---	---	---	ug/Kg	37 JQ	810 JL	63 UJL	19 JQ	66 U	63 U
SVOCs	Benzo[k]fluoranthene	207-08-9	11,000	1,100,000	---	---	---	ug/Kg	63 UJL	740 JL	63 UJL	64 UJL	66 U	63 U
SVOCs	Benzoic acid	65-85-0	250,000,000	760,000,000	---	320,000,000	---	ug/Kg	2,100 UJL	2,100 UJL	1,300 JQ	2,100 UJL	2,200 U	2,100 U
SVOCs	Benzyl alcohol	100-51-6	6,300,000	19,000,000	---	8,000,000	---	ug/Kg	530 UJL	530 UJL	520 UJL	530 UJL	550 U	520 U
SVOCs	Bis(2-chloroethoxy)methane	111-91-1	190,000	570,000	---	---	---	ug/Kg	210 UJL	210 UJL	210 UJL	210 UJL	220 U	210 U
SVOCs	Bis(2-chloroethyl)ether	111-44-4	230	23,000	---	---	910	ug/Kg	110 UJL	110 UJL	100 UJL	110 UJL	110 U	100 U
SVOCs	Bis(2-ethylhexyl) phthalate	117-81-7	39,000	3,800,000	---	1,600,000	71,000	ug/Kg	530 JQ	390 JQ	1,200 JL	260 JQ	660 U	82 JQ
SVOCs	bis(chloroisopropyl) ether	108-60-1	3,100,000	9,400,000	---	3,200,000	14,000	ug/Kg	210 UJL	210 UJL	210 UJL	210 UJL	220 U	210 U
SVOCs	Butyl benzyl phthalate	85-68-7	290,000	29,000,000	---	16,000,000	530,000	ug/Kg	210 UJL	210 UJL	210 UJL	210 UJL	72 JQ	210 U
SVOCs	Carbazole	86-74-8	---	---	---	---	---	ug/Kg	160 UJL	230 JL	160 UJL	160 UJL	160 U	160 U
SVOCs	Chrysene	218-01-9	110,000	11,000,000	---	---	---	ug/Kg	63 UJL	2,500 JL	63 UJL	64 UJL	66 U	63 U
SVOCs	Dibenz(a,h)anthracene	53-70-3	110	11,000	---	---	---	ug/Kg	53 UJL	220 JL	52 UJL	53 UJL	55 U	52 U
SVOCs	Dibenzofuran	132-64-9	73,000	220,000	---	80,000	---	ug/Kg	160 UJL	45 JQ	160 UJL	160 UJL	160 U	160 U
SVOCs	Diethyl phthalate	84-66-2	51,000,000	150,000,000	---	64,000,000	---	ug/Kg	1,600 UJL	1,600 UJL	1,600 UJL	1,600 UJL	1,600 U	1,600 U
SVOCs	Dimethyl phthalate	131-11-3	---	---	---	---	---	ug/Kg	160 UJL	160 UJL	160 UJL	15 JQ	160 U	160 U
SVOCs	Di-n-butyl phthalate	84-74-2	6,300,000	19,000,000	---	8,000,000	---	ug/Kg	64 JQ	530 UJL	520 UJL	77 JQ	550 U	520 U
SVOCs	Di-n-octyl phthalate	117-84-0	630,000	1,900,000	---	800,000	---	ug/Kg	160 UJL	160 UJL	160 UJL	160 UJL	160 U	160 U
SVOCs	Fluoranthene	206-44-0	2,400,000	7,200,000	---	3,200,000	---	ug/Kg	25 JQ	4,500 JL	26 UJL	16 JQ	15 JQ	10 JQ
SVOCs	Fluorene	86-73-7	2,400,000	7,200,000	---	3,200,000	---	ug/Kg	26 UJL	160 JL	26 UJL	27 UJL	27 U	26 U
SVOCs	Hexachlorobenzene	118-74-1	210	21,000	---	64,000	630	ug/Kg	53 UJL	53 UJL	52 UJL	53 UJL	55 U	52 U
SVOCs	Hexachlorobutadiene	87-68-3	1,200	120,000	---	80,000	13,000	ug/Kg	53 UJL	53 UJL	52 UJL	53 UJL	55 U	52 U
SVOCs	Hexachlorocyclopentadiene	77-47-4	1,800	5,300	---	480,000	---	ug/Kg	110 UJL	110 UJL	100 UJL	110 UJL	110 U	100 U
SVOCs	Hexachloroethane	67-72-1	1,800	130,000	---	56,000	25,000	ug/Kg	160 UJL	160 UJL	160 UJL	160 UJL	160 U	160 U
SVOCs	Indeno[1,2,3-cd]pyrene	193-39-5	1,100	110,000	---	---	---	ug/Kg	36 JQ	980 JL	42 UJL	19 JQ	44 U	42 U
SVOCs	Isophorone	78-59-1	570,000	38,000,000	---	16,000,000	1,100,000	ug/Kg	160 UJL	160 UJL	160 UJL	160 UJL	160 U	160 U

Table C-4 2019 W2 Stockpile Area Soil Analytical Results May Creek Landfill 15753 SE Renton Issaquah Rd Renton, WA														
Group	Chemical Analysis	CAS Number	EPA RSL	EPA RML	WA MTCA Method A	WA MTCA Method B (Noncancer, Direct Contact)	WA MTCA Method B (Cancer, Direct Contact)	Date:	7/10/2019	7/10/2019	7/10/2019	7/10/2019	8/7/2019	8/7/2019
								Sampling Depth (feet):	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0.5 - 1	0.5 - 1
								EPA Sample Number:	19070001	19070002	19070003	19070004	19070178	19070179
								Location:	W21901SS01	W21902SS01	W21903SS01	W21904SS01	W21916SB01	W21917SB01
								Removal Status:	Excavated	Excavated	Excavated	Excavated	Unexcavated	Unexcavated
								Units	Result	Result	Result	Result	Result	Result
SVOCs	Naphthalene	91-20-3	3,800	380,000	5,000	1,600,000	---	ug/Kg	7.5 JQ	27 UJL	120 JL	27 UJL	27 U	26 U
SVOCs	Nitrobenzene	98-95-3	5,100	380,000	---	160,000	---	ug/Kg	210 UJL	210 UJL	210 UJL	210 UJL	220 U	210 U
SVOCs	N-Nitrosodi-n-propylamine	621-64-7	78	7,800	---	---	140	ug/Kg	210 UJL	210 UJL	210 UJL	210 UJL	220 U	210 U
SVOCs	N-Nitrosodiphenylamine	86-30-6	110,000	11,000,000	---	---	200,000	ug/Kg	63 UJL	9.9 JQ	63 UJL	64 UJL	66 U	63 U
SVOCs	Pentachlorophenol	87-86-5	1,000	100,000	---	400,000	2,500	ug/Kg	470 UJL	480 UJL	470 UJL	480 UJL	490 U	470 U
SVOCs	Phenanthrene	85-01-8	---	---	---	---	---	ug/Kg	17 JQ	2,500 JL	63 UJL	64 UJL	66 U	63 U
SVOCs	Phenol	108-95-2	19,000,000	57,000,000	---	24,000,000	---	ug/Kg	160 UJL	160 UJL	160 UJL	160 UJL	160 U	160 U
SVOCs	Pyrene	129-00-0	1,800,000	5,400,000	---	2,400,000	---	ug/Kg	35 JQ	3,800 JL	77 JL	14 JQ	17 JQ	13 JQ
VOCs	1,1,1,2-Tetrachloroethane	630-20-6	2,000	200,000	---	2,400,000	38,000	ug/Kg	2.5 UJL	2.2 UJL	2.8 UJL	2.3 UJL	2.0 UJK	2.2 UJK
VOCs	1,1,1-Trichloroethane	71-55-6	8,100,000	24,000,000	2,000	160,000,000	---	ug/Kg	1.7 UJL	1.5 UJL	1.8 UJL	1.5 UJL	1.3 UJK	1.4 UJK
VOCs	1,1,2,2-Tetrachloroethane	79-34-5	600	60,000	---	1,600,000	5,000	ug/Kg	3.3 UJL	3.0 UJL	3.7 UJL	3.0 UJL	2.7 UJK	2.9 UJK
VOCs	1,1,2-Trichloroethane	79-00-5	1,100	4,500	---	320,000	18,000	ug/Kg	1.7 UJL	1.5 UJL	1.8 UJL	1.5 UJL	1.3 UJK	1.4 UJK
VOCs	1,1-Dichloroethane	75-34-3	3,600	360,000	---	16,000,000	180,000	ug/Kg	0.84 UJL	0.74 UJL	0.92 UJL	0.75 UJL	0.67 UJK	0.72 UJK
VOCs	1,1-Dichloroethene	75-35-4	230,000	680,000	---	4,000,000	---	ug/Kg	4.2 UJL	3.7 UJL	4.6 UJL	3.8 UJL	3.4 UJK	3.6 UJK
VOCs	1,1-Dichloropropene	563-58-6	---	---	---	---	---	ug/Kg	1.7 UJL	1.5 UJL	1.8 UJL	1.5 UJL	1.3 UJK	1.4 UJK
VOCs	1,2,3-Trichlorobenzene	87-61-6	63,000	190,000	---	---	---	ug/Kg	2.5 UJL	2.2 UJL	2.8 UJL	2.3 UJL	2.0 UJK	2.2 UJK
VOCs	1,2,3-Trichloropropane	96-18-4	5.1	510	---	320,000	33	ug/Kg	4.2 UJL	3.7 UJL	4.6 UJL	3.8 UJL	3.4 UJK	3.6 UJK
VOCs	1,2,4-Trichlorobenzene	120-82-1	24,000	170,000	---	800,000	34,000	ug/Kg	1.7 UJL	1.5 UJL	1.8 UJL	1.5 UJL	1.3 UJK	1.4 UJK
VOCs	1,2,4-Trimethylbenzene	95-63-6	300,000	910,000	---	800,000	---	ug/Kg	4.2 UJL	3.7 UJL	4.6 UJL	3.8 UJL	3.4 UJK	3.6 UJK
VOCs	1,2-Dibromo-3-Chloropropane	96-12-8	5.3	530	---	16,000	1,300	ug/Kg	8.4 UJL	7.4 UJL	9.2 UJL	7.5 UJL	6.7 UJK	7.2 UJK
VOCs	1,2-Dibromoethane	106-93-4	36	3,600	5	720,000	500	ug/Kg	0.84 UJL	0.74 UJL	0.92 UJL	0.75 UJL	0.67 UJK	0.72 UJK
VOCs	1,2-Dichlorobenzene	95-50-1	1,800,000	5,400,000	---	7,200,000	---	ug/Kg	8.4 UJL	7.4 UJL	9.2 UJL	7.5 UJL	6.7 UJK	7.2 UJK
VOCs	1,2-Dichloroethane	107-06-2	460	46,000	---	480,000	11,000	ug/Kg	0.84 UJL	0.74 UJL	0.92 UJL	0.75 UJL	0.67 UJK	0.72 UJK
VOCs	1,2-Dichloropropane	78-87-5	2,500	47,000	---	3,200,000	27,000	ug/Kg	1.7 UJL	1.5 UJL	1.8 UJL	1.5 UJL	1.3 UJK	1.4 UJK
VOCs	1,3,5-Trimethylbenzene	108-67-8	270,000	810,000	---	800,000	---	ug/Kg	4.2 UJL	3.7 UJL	4.6 UJL	3.8 UJL	3.4 UJK	3.6 UJK
VOCs	1,3-Dichlorobenzene	541-73-1	---	---	---	---	---	ug/Kg	4.2 UJL	3.7 UJL	4.6 UJL	3.8 UJL	3.4 UJK	3.6 UJK
VOCs	1,3-Dichloropropane	142-28-9	1,600,000	4,700,000	---	---	---	ug/Kg	1.7 UJL	1.5 UJL	1.8 UJL	1.5 UJL	1.3 UJK	1.4 UJK
VOCs	1,4-Dichlorobenzene	106-46-7	2,600	260,000	---	5,600,000	190,000	ug/Kg	4.2 UJL	3.7 UJL	4.6 UJL	3.8 UJL	3.4 UJK	3.6 UJK
VOCs	2,2-Dichloropropane	594-20-7	---	---	---	---	---	ug/Kg	4.2 UJL	3.7 UJL	4.6 UJL	3.8 UJL	3.4 UJK	3.6 UJK
VOCs	2-Chlorotoluene	95-49-8	1,600,000	4,700,000	---	1,600,000	---	ug/Kg	4.2 UJL	3.7 UJL	4.6 UJL	3.8 UJL	3.4 UJK	3.6 UJK
VOCs	4-Chlorotoluene	106-43-4	1,600,000	4,700,000	---	---	---	ug/Kg	4.2 UJL	3.7 UJL	4.6 UJL	3.8 UJL	3.4 UJK	3.6 UJK
VOCs	4-Isopropyltoluene	99-87-6	---	---	---	---	---	ug/Kg	1.7 UJL	1.5 UJL	1.8 UJL	1.5 UJL	1.3 UJK	1.4 UJK
VOCs	Benzene	71-43-2	1,200	120,000	30	320,000	18,000	ug/Kg	1.7 UJL	1.5 UJL	1.8 UJL	1.5 UJL	1.3 UJK	1.4 UJK
VOCs	Bromobenzene	108-86-1	290,000	860,000	---	---	640,000	ug/Kg	8.4 UJL	7.4 UJL	9.2 UJL	7.5 UJL	6.7 UJK	7.2 UJK
VOCs	Bromochloromethane	74-97-5	150,000	450,000	---	---	---	ug/Kg	1.7 UJL	1.5 UJL	1.8 UJL	1.5 UJL	1.3 UJK	1.4 UJK
VOCs	Bromodichloromethane	75-27-4	290	29,000	---	1,600,000	16,000	ug/Kg	0.84 UJL	0.74 UJL	0.92 UJL	0.75 UJL	0.67 UJK	0.72 UJK
VOCs	Bromoform	75-25-2	19,000	1,900,000	---	1,600,000	130,000	ug/Kg	4.2 UJL	3.7 UJL	4.6 UJL	3.8 UJL	3.4 UJK	3.6 UJK
VOCs	Bromomethane	74-83-9	6,800	21,000	---	110,000	---	ug/Kg	0.84 UJL	0.74 UJL	0.92 UJL	0.75 UJL	0.67 UJK	0.72 UJK



Table C-4 2019 W2 Stockpile Area Soil Analytical Results May Creek Landfill 15753 SE Renton Issaquah Rd Renton, WA														
Group	Chemical Analysis	CAS Number	EPA RSL	EPA RML	WA MTCA Method A	WA MTCA Method B (Noncancer, Direct Contact)	WA MTCA Method B (Cancer, Direct Contact)	Date:	7/10/2019	7/10/2019	7/10/2019	7/10/2019	8/7/2019	8/7/2019
								Sampling Depth (feet):	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0.5 - 1	0.5 - 1
								EPA Sample Number:	19070001	19070002	19070003	19070004	19070178	19070179
								Location:	W21901SS01	W21902SS01	W21903SS01	W21904SS01	W21916SB01	W21917SB01
								Removal Status:	Excavated	Excavated	Excavated	Excavated	Unexcavated	Unexcavated
								Units	Result	Result	Result	Result	Result	Result
VOCs	Carbon tetrachloride	56-23-5	650	65,000	---	320,000	14,000	ug/Kg	1.7 UJL	1.5 UJL	1.8 UJL	1.5 UJL	1.3 UJK	1.4 UJK
VOCs	Chlorobenzene	108-90-7	280,000	830,000	---	1,600,000	---	ug/Kg	1.7 UJL	1.5 UJL	1.8 UJL	1.5 UJL	1.3 UJK	1.4 UJK
VOCs	Chloroethane	75-00-3	14,000,000	41,000,000	---	---	---	ug/Kg	8.4 UJL	7.4 UJL	9.2 UJL	7.5 UJL	6.7 UJK	7.2 UJK
VOCs	Chloroform	67-66-3	320	32,000	---	800,000	32,000	ug/Kg	1.7 UJL	1.5 UJL	1.8 UJL	1.5 UJL	1.3 UJK	1.4 UJK
VOCs	Chloromethane	74-87-3	110,000	330,000	---	---	---	ug/Kg	4.2 UJL	3.7 UJL	4.6 UJL	3.8 UJL	3.4 UJK	3.6 UJK
VOCs	cis-1,2-Dichloroethene	156-59-2	160,000	470,000	---	160,000	---	ug/Kg	2.5 UJL	2.2 UJL	2.8 UJL	2.3 UJL	2.0 UJK	2.2 UJK
VOCs	cis-1,3-Dichloropropene	10061-01-5	---	---	---	---	---	ug/Kg	0.84 UJL	0.74 UJL	0.92 UJL	0.75 UJL	0.67 UJK	0.72 UJK
VOCs	Dibromochloromethane	124-48-1	8,300	830,000	---	1,600,000	12,000	ug/Kg	1.3 UJL	1.1 UJL	1.4 UJL	1.1 UJL	1.0 UJK	1.1 UJK
VOCs	Dibromomethane	74-95-3	24,000	71,000	---	800,000	---	ug/Kg	0.84 UJL	0.74 UJL	0.92 UJL	0.75 UJL	0.67 UJK	0.72 UJK
VOCs	Dichlorodifluoromethane	75-71-8	87,000	260,000	---	16,000,000	---	ug/Kg	1.7 UJL	1.5 UJL	1.8 UJL	1.5 UJL	1.3 UJK	1.4 UJK
VOCs	Ethylbenzene	100-41-4	5,800	580,000	6,000	8,000,000	---	ug/Kg	1.7 UJL	1.5 UJL	1.8 UJL	1.5 UJL	1.3 UJK	1.4 UJK
VOCs	Hexachlorobutadiene	87-68-3	1,200	120,000	---	80,000	13,000	ug/Kg	2.5 UJL	2.2 UJL	2.8 UJL	2.3 UJL	2.0 UJK	2.2 UJK
VOCs	Isopropylbenzene	98-82-8	1,900,000	5,800,000	---	8,000,000	---	ug/Kg	1.7 UJL	1.5 UJL	1.8 UJL	1.5 UJL	1.3 UJK	1.4 UJK
VOCs	Methyl tert-butyl ether	1634-04-4	47,000	4,700,000	100	---	560,000	ug/Kg	1.7 UJL	1.5 UJL	1.8 UJL	1.5 UJL	1.3 UJK	1.4 UJK
VOCs	Methylene Chloride	75-09-2	57,000	1,000,000	20	480,000	500,000	ug/Kg	33 UJL	30 UJL	37 UJL	30 UJL	27 UJK	29 UJK
VOCs	m-Xylene & p-Xylene	179601-23-1	580,000	1,700,000	9,000	16,000,000	---	ug/Kg	8.4 UJL	7.4 UJL	9.2 UJL	7.5 UJL	6.7 UJK	7.2 UJK
VOCs	Naphthalene	91-20-3	3,800	380,000	5,000	1,600,000	---	ug/Kg	8.4 UJL	7.4 UJL	9.2 UJL	7.5 UJL	6.7 UJK	7.2 UJK
VOCs	n-Butylbenzene	104-51-8	3,900,000	12,000,000	---	4,000,000	---	ug/Kg	2.5 UJL	2.2 UJL	2.8 UJL	2.3 UJL	2.0 UJK	2.2 UJK
VOCs	N-Propylbenzene	103-65-1	3,800,000	11,000,000	---	8,000,000	---	ug/Kg	4.2 UJL	3.7 UJL	4.6 UJL	3.8 UJL	3.4 UJK	3.6 UJK
VOCs	o-Xylene	95-47-6	650,000	1,900,000	9,000	16,000,000	---	ug/Kg	4.2 UJL	3.7 UJL	4.6 UJL	3.8 UJL	3.4 UJK	3.6 UJK
VOCs	sec-Butylbenzene	135-98-8	7,800,000	23,000,000	---	8,000,000	---	ug/Kg	2.5 UJL	2.2 UJL	2.8 UJL	2.3 UJL	2.0 UJK	2.2 UJK
VOCs	Styrene	100-42-5	6,000,000	18,000,000	---	16,000,000	---	ug/Kg	2.5 UJL	2.2 UJL	2.8 UJL	2.3 UJL	2.0 UJK	2.2 UJK
VOCs	t-Butylbenzene	98-06-6	7,800,000	23,000,000	---	8,000,000	---	ug/Kg	2.5 UJL	2.2 UJL	2.8 UJL	2.3 UJL	2.0 UJK	2.2 UJK
VOCs	Tetrachloroethene	127-18-4	24,000	240,000	50	480,000	480,000	ug/Kg	1.7 UJL	1.5 UJL	1.8 UJL	1.5 UJL	1.3 UJK	1.4 UJK
VOCs	Toluene	108-88-3	4,900,000	15,000,000	7,000	6,400,000	---	ug/Kg	8.4 UJL	7.4 UJL	9.2 UJL	7.5 UJL	6.7 UJK	7.2 UJK
VOCs	trans-1,2-Dichloroethene	156-60-5	1,600,000	4,700,000	---	1,600,000	---	ug/Kg	1.7 UJL	1.5 UJL	1.8 UJL	1.5 UJL	1.3 UJK	1.4 UJK
VOCs	trans-1,3-Dichloropropene	10061-02-6	---	---	---	---	---	ug/Kg	8.4 UJL	7.4 UJL	9.2 UJL	7.5 UJL	6.7 UJK	7.2 UJK
VOCs	Trichloroethene	79-01-6	940	12,000	30	40,000	12,000	ug/Kg	1.7 UJL	1.5 UJL	1.8 UJL	1.5 UJL	1.3 UJK	1.4 UJK
VOCs	Trichlorofluoromethane	75-69-4	23,000,000	70,000,000	---	24,000,000	---	ug/Kg	1.7 UJL	1.5 UJL	1.8 UJL	1.5 UJL	1.3 UJK	1.4 UJK
VOCs	Vinyl chloride	75-01-4	59	5,900	---	240,000	670	ug/Kg	1.7 UJL	1.5 UJL	1.8 UJL	1.5 UJL	1.3 UJK	1.4 UJK
Dioxin	2,3,7,8-TCDD	1746-01-6	4.8	150	---	93	13	pg/g	0.430 JQ	---	---	---	---	---
Dioxin	1,2,3,7,8-PeCDD	40321-76-4	---	---	---	---	---	pg/g	1.96 JQ	---	---	---	---	---
Dioxin	1,2,3,4,7,8-HxCDD	39227-28-6	---	---	---	---	---	pg/g	4.08 JQ	---	---	---	---	---
Dioxin	1,2,3,6,7,8-HxCDD	57653-85-7	---	---	---	---	---	pg/g	11.3	---	---	---	---	---
Dioxin	1,2,3,7,8,9-HxCDD	19408-74-3	---	---	---	---	---	pg/g	6.89	---	---	---	---	---
Dioxin	1,2,3,4,6,7,8-HpCDD	35822-46-9	---	---	---	---	---	pg/g	304 JL	---	---	---	---	---
Dioxin	1,2,3,4,6,7,8,9-OCDD	3268-87-9	---	---	---	---	---	pg/g	2,730	---	---	---	---	---
Dioxin	2,3,7,8-TCDF	51207-31-9	---	---	---	---	---	pg/g	2.74	---	---	---	---	---

Table C-4 2019 W2 Stockpile Area Soil Analytical Results May Creek Landfill 15753 SE Renton Issaquah Rd Renton, WA														
Group	Chemical Analysis	CAS Number	EPA RSL	EPA RML	WA MTCA Method A	WA MTCA Method B (Noncancer, Direct Contact)	WA MTCA Method B (Cancer, Direct Contact)	Date:	7/10/2019	7/10/2019	7/10/2019	7/10/2019	8/7/2019	8/7/2019
								Sampling Depth (feet):	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0.5 - 1	0.5 - 1
								EPA Sample Number:	19070001	19070002	19070003	19070004	19070178	19070179
								Location:	W21901SS01	W21902SS01	W21903SS01	W21904SS01	W21916SB01	W21917SB01
								Removal Status:	Excavated	Excavated	Excavated	Excavated	Unexcavated	Unexcavated
								Units	Result	Result	Result	Result	Result	Result
Dioxin	1,2,3,7,8-PeCDF	57117-41-6	---	---	---	---	---	pg/g	4.94 U	---	---	---	---	---
Dioxin	2,3,4,7,8-PeCDF	57117-31-4	---	---	---	---	---	pg/g	6.47	---	---	---	---	---
Dioxin	1,2,3,4,7,8-HxCDF	70648-26-9	---	---	---	---	---	pg/g	8.79	---	---	---	---	---
Dioxin	1,2,3,6,7,8-HxCDF	57117-44-9	---	---	---	---	---	pg/g	8.27	---	---	---	---	---
Dioxin	2,3,4,6,7,8-HxCDF	60851-34-5	---	---	---	---	---	pg/g	9.68	---	---	---	---	---
Dioxin	1,2,3,7,8,9-HxCDF	72918-21-9	---	---	---	---	---	pg/g	2.56 JQ	---	---	---	---	---
Dioxin	1,2,3,4,6,7,8-HpCDF	67562-39-4	---	---	---	---	---	pg/g	64.0	---	---	---	---	---
Dioxin	1,2,3,4,7,8,9-HpCDF	55673-89-7	---	---	---	---	---	pg/g	5.60	---	---	---	---	---
Dioxin	1,2,3,4,6,7,8,9-OCDF	39001-02-0	---	---	---	---	---	pg/g	79.2	---	---	---	---	---
Dioxin	Total Tetrachlorodibenzo-p-dioxin	41903-57-5	---	---	---	---	---	pg/g	13.2 JQ	---	---	---	---	---
Dioxin	Total Pentachlorodibenzo-p-dioxin	36088-22-9	---	---	---	---	---	pg/g	29.9 JQ	---	---	---	---	---
Dioxin	Total Hexachlorodibenzo-p-dioxin	34465-46-8	---	---	---	---	---	pg/g	94.0 JQ	---	---	---	---	---
Dioxin	Total Heptachlorodibenzo-p-dioxin	37871-00-4	---	---	---	---	---	pg/g	573	---	---	---	---	---
Dioxin	Total Tetrachlorodibenzofuran	30402-14-3	---	---	---	---	---	pg/g	67.8 JQ	---	---	---	---	---
Dioxin	Total Pentachlorodibenzofuran	30402-15-4	---	---	---	---	---	pg/g	85.3 JQ	---	---	---	---	---
Dioxin	Total Hexachlorodibenzofuran	55684-94-1	---	---	---	---	---	pg/g	116 JQ	---	---	---	---	---
Dioxin	Total Heptachlorodibenzofuran	38998-75-3	---	---	---	---	---	pg/g	138	---	---	---	---	---
Dioxin	TEQ WHO2005 ND=0	3333-30-0	4.8	150	---	93	13	pg/g	14.4	---	---	---	---	---
Dioxin	TEQ WHO2005 ND=0.5	3333-30-1	4.8	150	---	93	13	pg/g	14.5	---	---	---	---	---

Notes:

<b>1,180</b>	= Yellow highlighting indicates result that exceeds listed screening levels.
<b>1,180</b>	= Bold text indicates a detected result.
—	= Not Applicable
CAS	= Chemical Abstracts Service
Dioxin	= Dioxins/Furans, SW846 Method 8290A
Dx	= Northwest Total Petroleum Hydrocarbons - Extended Diesel Range (Semi-volatile Petroleum Products)
EPA RML	= Environmental Protection Agency (EPA) Removal Management Levels (RML), 40 CFR Part 300, November 2019
EPA RSL	= Environmental Protection Agency (EPA) Regional Screening Levels (RSL), 40 CFR Part 300, November 2019
Gx	= Northwest Total Petroleum Hydrocarbons - Extended Gasoline Range (Volatile Petroleum Products)
H	= The sample result is biased high.
J	= The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
K	= The bias of the sample is not known.
L	= The sample result is biased low.
Metals	= Target Analyte List Metals, EPA Method 6010C (ICP-AES) and 7471 (CVAA)
mg/Kg	= milligrams per kilogram
Pesticides	= Organochlorine Pesticides, EPA Method 8081B by GC/ECD
PCBs	= Polychlorinated Biphenyls (PCBs), EPA Method 8082A by GC/ECD
pg/g	= picograms per gram
Q	= Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.
SVOCs	= Semi-Volatile Organic Compounds, EPA Method 8270D by GC/MS
U	= The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
ug/kg	= micrograms per kilogram
VOCs	= Volatile Organic Compounds, EPA Method 8260C by GC/MS
WA MTCA Method A	= Washington State (WA) Model Toxics Control Act (MTCA) Cleanup Regulation Method A (unrestricted land use) value from the Cleanup and Risk Calculations tables (CLARC), chapter 173-340 WAC, August 2015
WA MTCA Method B	= Washington State (WA) Model Toxics Control Act (MTCA) Cleanup Regulation Method B (unrestricted land use) value from the Cleanup and Risk Calculations tables (CLARC), chapter 173-340 WAC, August 2015

Table C-5 2019 W2 Dioxin Area Soil Analytical Results May Creek Landfill 15753 SE Renton Issaquah Rd Renton, WA								
Group	Chemical Analysis	CAS Number	EPA RSL	EPA RML	WA MTCA Method B (Noncancer, Direct Contact)	WA MTCA Method B (Cancer, Direct Contact)	Date:	7/11/2019
							Sampling Depth (feet):	0.5 - 1
							EPA Sample Number:	19070111
							Location:	W21905SB01
							Removal Status:	Excavated
							Units	Result
Dioxin	2,3,7,8-TCDD	1746-01-6	4.8	150	93	13	pg/g	<b>0.387 JH</b>
Dioxin	1,2,3,7,8-PeCDD	40321-76-4	---	---	---	---	pg/g	<b>0.375 JQ</b>
Dioxin	1,2,3,4,7,8-HxCDD	39227-28-6	---	---	---	---	pg/g	<b>0.837 JQ</b>
Dioxin	1,2,3,6,7,8-HxCDD	57653-85-7	---	---	---	---	pg/g	<b>3.33 JQ</b>
Dioxin	1,2,3,7,8,9-HxCDD	19408-74-3	---	---	---	---	pg/g	<b>1.73 JQ</b>
Dioxin	1,2,3,4,6,7,8-HpCDD	35822-46-9	---	---	---	---	pg/g	<b>77.0</b>
Dioxin	1,2,3,4,6,7,8,9-OCDD	3268-87-9	---	---	---	---	pg/g	<b>709</b>
Dioxin	2,3,7,8-TCDF	51207-31-9	---	---	---	---	pg/g	0.934 U
Dioxin	1,2,3,7,8-PeCDF	57117-41-6	---	---	---	---	pg/g	<b>0.450 JQ</b>
Dioxin	2,3,4,7,8-PeCDF	57117-31-4	---	---	---	---	pg/g	4.67 U
Dioxin	1,2,3,4,7,8-HxCDF	70648-26-9	---	---	---	---	pg/g	4.67 U
Dioxin	1,2,3,6,7,8-HxCDF	57117-44-9	---	---	---	---	pg/g	4.67 U
Dioxin	2,3,4,6,7,8-HxCDF	60851-34-5	---	---	---	---	pg/g	4.67 U
Dioxin	1,2,3,7,8,9-HxCDF	72918-21-9	---	---	---	---	pg/g	<b>0.489 JQ</b>
Dioxin	1,2,3,4,6,7,8-HpCDF	67562-39-4	---	---	---	---	pg/g	<b>12.0</b>
Dioxin	1,2,3,4,7,8,9-HpCDF	55673-89-7	---	---	---	---	pg/g	0.467 U
Dioxin	1,2,3,4,6,7,8,9-OCDF	39001-02-0	---	---	---	---	pg/g	<b>25.3</b>
Dioxin	Total Tetrachlorodibenzo-p-dioxin	41903-57-5	---	---	---	---	pg/g	<b>0.745 JQ</b>
Dioxin	Total Pentachlorodibenzo-p-dioxin	36088-22-9	---	---	---	---	pg/g	<b>5.26 JQ</b>
Dioxin	Total Hexachlorodibenzo-p-dioxin	34465-46-8	---	---	---	---	pg/g	<b>23.1 JQ</b>
Dioxin	Total Heptachlorodibenzo-p-dioxin	37871-00-4	---	---	---	---	pg/g	<b>146</b>
Dioxin	Total Tetrachlorodibenzofuran	30402-14-3	---	---	---	---	pg/g	<b>11.8 J</b>
Dioxin	Total Pentachlorodibenzofuran	30402-15-4	---	---	---	---	pg/g	<b>31.8 J</b>
Dioxin	Total Hexachlorodibenzofuran	55684-94-1	---	---	---	---	pg/g	<b>34.1 J</b>
Dioxin	Total Heptachlorodibenzofuran	38998-75-3	---	---	---	---	pg/g	<b>36.6 J</b>
Dioxin	TEQ WHO2005 ND=0	3333-30-0	4.8	150	93	13	pg/g	<b>2.03</b>
Dioxin	TEQ WHO2005 ND=0.5	3333-30-1	4.8	150	93	13	pg/g	<b>3.48</b>

Notes:

**1,180** = Bold text indicates a detected result.

--- = Not Applicable

CAS = Chemical Abstracts Service

Dioxins = Dioxins/Furans, SW846 Method 8290A

EPA RML = Environmental Protection Agency (EPA) Removal Management Levels (RML), 40 CFR Part 300, November 2019

EPA RSL = Environmental Protection Agency (EPA) Regional Screening Levels (RSL), 40 CFR Part 300, November 2019

H = The sample result is biased high.

J = The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

pg/g = Picograms per gram

Q = Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.

U = The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.

WA MTCA Method A = Washington State (WA) Model Toxics Control Act (MTCA) Cleanup Regulation Method A (unrestricted land use) value from the Cleanup and Risk Calculations tables (CLARC), chapter 173-340 WAC, August 2015

WA MTCA Method B = Washington State (WA) Model Toxics Control Act (MTCA) Cleanup Regulation Method B (unrestricted land use) value from the Cleanup and Risk Calculations tables (CLARC), chapter 173-340 WAC, August 2015



Table C-6 2019 L2 Soil Analytical Results May Creek Landfill 15753 SE Renton Issaquah Rd Renton, WA												
Group	Chemical Analysis	CAS Number	WA MTCA Method A	Date:	7/10/2019	7/10/2019	7/10/2019	7/10/2019	7/12/2019	7/12/2019	7/12/2019	7/12/2019
				Sampling Depth (feet):	1 - 1.5	1 - 1.5	1 - 1.5	1 - 1.5	2 - 3	2 - 3	2 - 3	2 - 3
				EPA Sample Number:	19070107	19070108	19070109	19070110	19070130	19070131	19070132	19070133
				Location:	L21901SB12	L21902SB12	L21903SB12	L21904SB12	L21905SB23	L21906SB23	L21907SB23	Field Duplicate of L21907SB23
				Removal Status:	Unexcavated	Excavated	Excavated	Excavated	Excavated	Excavated	Excavated	Excavated
				Units	Result	Result	Result	Result	Result	Result	Result	Result
Dx	Diesel	STL00163	2,000	mg/Kg	280 JQ	1,700 U	1,400 U	910 JK	160 JQ	2,300 U	52 JQ	43 JQ
Dx	Motor Oil	STL00299	2,000	mg/Kg	3,300	2,400	2,500	2,000	1,700	8,500	400	240

Group	Chemical Analysis	CAS Number	WA MTCA Method A	Date:	7/17/2019	7/17/2019	7/17/2019	7/26/2019	7/26/2019	7/26/2019	7/26/2019
				Sampling Depth (feet):	3 - 4	5 - 6	2 - 3	2 - 3	4 - 5	2 - 3	5 - 6
				EPA Sample Number:	19070153	19070154	19070155	19070163	19070164	19070165	19070166
				Location:	L21909SB34	L21910SB56	L21911SB23	L21912SB23	L21912SB45	L21913SB23	L21913SB56
				Removal Status:	Excavated	Excavated	Unexcavated	Unexcavated	Unexcavated	Unexcavated	Unexcavated
				Units	Result	Result	Result	Result	Result	Result	Result
Dx	Diesel	STL00258	2,000	mg/Kg	840 JH	310 JQ	31 JH	590	66 U	260 U	120 JQ
Dx	Motor Oil	STL00383	2,000	mg/Kg	5,600	3,300	160	6,200	360	800	1,400

Notes:

**1,180** = Yellow highlighting indicates result that exceeds listed screening levels.

**1,180** = Bold text indicates a detected result.

— = Not Applicable

CAS = Chemical Abstracts Service

Dx = Northwest Total Petroleum Hydrocarbons - Extended Diesel Range (Semi-volatile Petroleum Products)

J = The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

K = The bias of the sample is not known.

mg/Kg = Milligrams per kilogram

Q = Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.

U = The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.

WA MTCA Method A = Washington State (WA) Model Toxics Control Act (MTCA) Cleanup Regulation Method A (unrestricted land use) value from the Cleanup and Risk Calculations tables (CLARC), chapter 173-340 WAC, August 2015

Table C-7 2019 B1 Soil Analytical Results May Creek Landfill 15753 SE Renton Issaquah Rd Renton, WA													
Group	Chemical Analysis	CAS Number	WA MTCA Method A	Date:	7/10/2019	7/10/2019	7/10/2019	7/10/2019	7/10/2019	7/12/2019	7/12/2019	7/12/2019	7/12/2019
				Sampling Depth (feet):	0.5 - 1	0.5 - 1	0.5 - 1	0.5 - 1	1 - 1.5	1 - 2	1 - 2	2 - 3	1 - 2
				EPA Sample Number:	19070102	19070103	19070104	19070105	19070106	19070134	19070135	19070136	19070137
				Location:	B11902SB01	B11903SB01	B11904SB01	B11905SB01	B11906SB01	B11907SB12	B11908SB12	B11909SB23	B11910SB12
				Removal Status:	Excavated	Excavated	Unexcavated	Excavated	Excavated	Unexcavated	Unexcavated	Unexcavated	Unexcavated
				Units	Result	Result	Result	Result	Result	Result	Result	Result	Result
Dx	Diesel	STL00163	2,000	mg/Kg	27 JQ	560 U	130 U	530 U	6,600 JH	20 JQ	23 JQ	490 U	83 JQ
Dx	Motor Oil	STL00299	2,000	mg/Kg	290	750	440	710	790	190	230	1,000	980

Notes:

- 1,180

= Yellow highlighting indicates result that exceeds listed screening levels.
- 1,180

= Bold text indicates a detected result.
- = Not Applicable
- CAS

= Chemical Abstracts Service
- Dx

= Northwest Total Petroleum Hydrocarbons - Extended Diesel Range (Semi-volatile Petroleum Products)
- H

= The sample result is biased high.
- J

= The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
- mg/Kg

= milligrams per kilogram
- Q

= Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.
- U

= The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.

WA MTCA Method A = Washington State (WA) Model Toxics Control Act (MTCA) Cleanup Regulation Method A (unrestricted land use) value from the Cleanup and Risk Calculations tables (CLARC), chapter 173-340 WAC, August 2015

Table C-8 2019 B3 Petroleum Hydrocarbon Soil Analytical Results May Creek Landfill 15753 SE Renton Issaquah Rd Renton, WA															
Group	Chemical Analysis	CAS Number	WA MTCA Method A	Date:	7/13/2019	7/13/2019	7/13/2019	7/17/2019	7/17/2019	7/17/2019	7/17/2019	7/17/2019	7/25/2019	7/25/2019	7/25/2019
				Sampling Depth (feet):	2 - 3	2 - 3	2 - 3	2 - 3	1 - 2	2 - 3	2 - 3	1 - 2	2 - 3	2 - 3	1 - 2
				EPA Sample Number:	19070138	19070139	19070140	19070148	19070149	19070150	19070152	19070151	19070156	19070157	19070158
				Location:	B31904SB23	B31905SB23	B31906SB23	B31909SB23	B31910SB12	B31911SB23	Field Duplicate of B31911SB23	B31912SB12	B31914SB23	B31915SB23	B31916SB12
				Removal Status:	Unexcavated	Unexcavated	Excavated	Excavated	Unexcavated	Excavated	Excavated	Excavated	Unexcavated	Unexcavated	Unexcavated
				Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Dx	Diesel	STL00163	2,000	mg/Kg	330 JK	360 JK	240 JK	340 JH	500	920 JK	1,200	400 JH	46	39 JQ	160 JQ
Dx	Motor Oil	STL00299	2,000	mg/Kg	1,300	2,000	740	1,800	2,100	2,300 JK	2,100	3,300	290	370	2,100
Gx	Gasoline	STL00228	30	mg/Kg	4.4 UJL	4.4 UJL	14 JL	3.3 JQ	7.8 U	61	67	7.4 U	4.9 U	6.6 U	8.2 U

Group	Chemical Analysis	CAS Number	WA MTCA Method A	Date:	7/25/2019	7/25/2019	7/25/2019	7/25/2019	8/6/2019	8/6/2019	8/6/2019	8/6/2019	8/7/2019	8/7/2019	8/7/2019
				Sampling Depth (feet):	3 - 4	2 - 3	2 - 3	3 - 4	2 - 3	2 - 3	2 - 3	2 - 3	1 - 2	1 - 2	1 - 2
				EPA Sample Number:	19070159	19070160	19070161	19070162	19070170	19070169	19070167	19070168	19070171	19070172	19070173
				Location:	B31917SB34	B31918SB23	B31919SB23	B31920SB34	B31921SB23	B31922SB23	B31923SB23	B31924SB23	B31925SB12	Field Duplicate of B31925SB12	B31926SB12
				Removal Status:	Unexcavated	Excavated	Excavated	Unexcavated	Unexcavated	Unexcavated	Unexcavated	Unexcavated	Unexcavated	Unexcavated	Unexcavated
				Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Dx	Diesel	STL00163	2,000	mg/Kg	570	300	530	120	610 U	380 JQ	200 JQ	780 JH	3,300 U	1,600 U	2,800 U
Dx	Motor Oil	STL00299	2,000	mg/Kg	1,400	2,500	2,300	840	1,100	2,600	2,300	3,300	4,900	3,300	4,800
Gx	Gasoline	STL00228	30	mg/Kg	23	9.6 U	5.6 JQ	5.7 U	---	---	---	---	---	---	---

Group	Chemical Analysis	CAS Number	WA MTCA Method A	Date:	8/7/2019	8/7/2019	8/7/2019	8/7/2019
				Sampling Depth (feet):	2 - 3	1 - 2	2 - 3	2 - 3
				EPA Sample Number:	19070174	19070175	19070176	19070177
				Location:	B31927SB23	B31928SB12	B31929SB23	B31930SB23
				Removal Status:	Unexcavated	Unexcavated	Unexcavated	Unexcavated
				Units	Result	Result	Result	Result
Dx	Diesel	STL00163	2,000	mg/Kg	1,300 U	650 JQ	1,000 U	1,100 U
Dx	Motor Oil	STL00299	2,000	mg/Kg	2,700	5,000	1,600	1,600
Gx	Gasoline	STL00228	30	mg/Kg	---	---	---	---

Notes:

**1,180** = Yellow highlighting indicates result that exceeds listed screening levels.

**1,180** = Bold text indicates a detected result.

— = Not Applicable

CAS = Chemical Abstracts Service

Dx = Northwest Total Petroleum Hydrocarbons - Extended Diesel Range (Semi-volatile Petroleum Products)

Gx = Northwest Total Petroleum Hydrocarbons - Extended Gasoline Range (Volatile Petroleum Products)

H = The sample result is biased high

J = The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

K = The bias of the sample is not known.

L = The sample result is biased low.

mg/Kg = milligrams per kilogram

Q = Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.

U = The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.

WA MTCA Method A = Washington State (WA) Model Toxics Control Act (MTCA) Cleanup Regulation Method A (unrestricted land use) value from the Cleanup and Risk Calculations tables (CLARC), chapter 173-340 WAC, August 2015

Table C-9 2019 B3 PCB Soil Analytical Results May Creek Landfill 15753 SE Renton Issaquah Rd Renton, WA																
Group	Chemical Analysis	CAS Number	EPA RSL	EPA RML	WA MTCA Method A	WA MTCA Method B (Noncancer, Direct Contact)	WA MTCA Method B (Cancer, Direct Contact)	Date:	7/17/2019	7/17/2019	7/17/2019	7/17/2019	7/17/2019	7/25/2019	7/25/2019	7/25/2019
								Sampling Depth (feet):	2 - 3	1 - 2	2 - 3	2 - 3	1 - 2	2 - 3	2 - 3	1 - 2
								EPA Sample Number:	19070148	19070149	19070150	19070152	19070151	19070156	19070157	19070158
								Location:	B31909SB23	B31910SB12	B31911SB23	Field Duplicate of B31911SB23	B31912SB12	B31914SB23	B31915SB23	B31916SB12
								Removal Status:	Excavated	Unexcavated	Excavated	Excavated	Excavated	Unexcavated	Unexcavated	Unexcavated
								Units	Result	Result	Result	Result	Result	Result	Result	Result
PCBs	PCB-1016	12674-11-2	4,100	12,000	---	5,600	14,000	ug/Kg	25 U	26 U	25 U	24 U	25 U	12 U	12 U	13 U
PCBs	PCB-1221	11104-28-2	200	20,000	---	---	---	ug/Kg	25 U	26 U	25 U	24 U	25 U	12 U	12 U	13 U
PCBs	PCB-1232	11141-16-5	170	17,000	---	---	---	ug/Kg	25 U	26 U	25 U	24 U	25 U	12 U	12 U	13 U
PCBs	PCB-1242	53469-21-9	230	23,000	---	---	---	ug/Kg	25 U	26 U	990	1,700	25 U	12 U	12 U	13 U
PCBs	PCB-1248	12672-29-6	230	23,000	---	1,600	---	ug/Kg	25 U	26 U	25 U	24 U	25 U	12 U	12 U	13 U
PCBs	PCB-1254	11097-69-1	240	3,500	---	---	500	ug/Kg	25 U	26 U	25 U	24 U	25 U	12 U	12 U	13 U
PCBs	PCB-1260	11096-82-5	240	24,000	---	---	500	ug/Kg	25 U	26 U	25 U	24 U	12 JQ	130	15 JK	13 U
PCBs	PCB-1262	37324-23-5	---	---	1,000	---	---	ug/Kg	25 U	26 U	25 U	24 U	25 U	12 U	12 U	13 U
PCBs	PCB-1268	11100-14-4	---	---	1,000	---	---	ug/Kg	25 U	26 U	25 U	24 U	25 U	12 U	12 U	13 U
PCBs	Total PCB	1336-36-3	230	23,000	1,000	---	500	ug/Kg	---	---	990	1,700	12 JQ	130	15 JK	---

Group	Chemical Analysis	CAS Number	EPA RSL	EPA RML	WA MTCA Method A	WA MTCA Method B (Noncancer, Direct Contact)	WA MTCA Method B (Cancer, Direct Contact)	Date:	7/25/2019	7/25/2019	7/25/2019	7/25/2019	8/6/2019	8/6/2019	8/6/2019	8/6/2019
								Sampling Depth (feet):	3 - 4	2 - 3	2 - 3	3 - 4	2 - 3	2 - 3	2 - 3	2 - 3
								EPA Sample Number:	19070159	19070160	19070161	19070162	19070170	19070169	19070167	19070168
								Location:	B31917SB34	B31918SB23	B31919SB23	B31920SB34	B31921SB23	B31922SB23	B31923SB23	B31924SB23
								Removal Status:	Unexcavated	Excavated	Excavated	Unexcavated	Unexcavated	Unexcavated	Unexcavated	Unexcavated
								Units	Result	Result	Result	Result	Result	Result	Result	Result
PCBs	PCB-1016	12674-11-2	4,100	12,000	---	5,600	14,000	ug/Kg	15 U	15 U	13 U	12 U	21 U	61 JQ	64 U	170
PCBs	PCB-1221	11104-28-2	200	20,000	---	---	---	ug/Kg	15 U	15 U	13 U	12 U	21 U	67 U	64 U	82 U
PCBs	PCB-1232	11141-16-5	170	17,000	---	---	---	ug/Kg	15 U	15 U	13 U	12 U	21 U	67 U	64 U	82 U
PCBs	PCB-1242	53469-21-9	230	23,000	---	---	---	ug/Kg	15 U	15 U	990	12 U	21 U	67 U	64 U	82 U
PCBs	PCB-1248	12672-29-6	230	23,000	---	1,600	---	ug/Kg	510	15 U	13 U	12 U	21 U	67 U	64 U	82 U
PCBs	PCB-1254	11097-69-1	240	3,500	---	---	500	ug/Kg	15 U	270	13 U	12 U	21 U	67 U	130	82 U
PCBs	PCB-1260	11096-82-5	240	24,000	---	---	500	ug/Kg	15	15 U	13 U	12 U	14 JQ	67 U	64 U	82 U
PCBs	PCB-1262	37324-23-5	---	---	1,000	---	---	ug/Kg	15 U	15 U	13 U	12 U	---	---	---	---
PCBs	PCB-1268	11100-14-4	---	---	1,000	---	---	ug/Kg	15 U	15 U	13 U	12 U	---	---	---	---
PCBs	Total PCB	1336-36-3	230	23,000	1,000	---	500	ug/Kg	530	270	990	---	14 JQ	61 JQ	130	170

Group	Chemical Analysis	CAS Number	EPA RSL	EPA RML	WA MTCA Method A	WA MTCA Method B (Noncancer, Direct Contact)	WA MTCA Method B (Cancer, Direct Contact)	Date:	8/7/2019	8/7/2019	8/7/2019	8/7/2019	8/7/2019	8/7/2019	8/7/2019
								Sampling Depth (feet):	1 - 2	1 - 2	1 - 2	2 - 3	1 - 2	2 - 3	2 - 3
								EPA Sample Number:	19070171	19070172	19070173	19070174	19070175	19070176	19070177
								Location:	B31925SB12	Field Duplicate of B31925SB12	B31926SB12	B31927SB23	B31928SB12	B31929SB23	B31930SB23
								Removal Status:	Unexcavated	Unexcavated	Unexcavated	Unexcavated	Unexcavated	Unexcavated	Unexcavated
								Units	Result	Result	Result	Result	Result	Result	Result
PCBs	PCB-1016	12674-11-2	4,100	12,000	---	5,600	14,000	ug/Kg	78 U	73 U	280	74 U	63 U	66 U	65 U
PCBs	PCB-1221	11104-28-2	200	20,000	---	---	---	ug/Kg	78 U	73 U	66 U	74 U	63 U	66 U	65 U
PCBs	PCB-1232	11141-16-5	170	17,000	---	---	---	ug/Kg	78 U	73 U	66 U	74 U	63 U	66 U	65 U
PCBs	PCB-1242	53469-21-9	230	23,000	---	---	---	ug/Kg	78 U	73 U	66 U	74 U	63 U	66 U	65 U
PCBs	PCB-1248	12672-29-6	230	23,000	---	1,600	---	ug/Kg	64 JQ	40 JQ	66 U	74 U	63 U	66 U	65 U
PCBs	PCB-1254	11097-69-1	240	3,500	---	---	500	ug/Kg	78 U	73 U	66 U	30 JQ	63 U	56 JQ	65 U
PCBs	PCB-1260	11096-82-5	240	24,000	---	---	500	ug/Kg	78 UJL	73 UJL	66 UJL	74 UJL	63 UJL	66 UJL	65 U
PCBs	PCB-1262	37324-23-5	---	---	1,000	---	---	ug/Kg	---	---	---	---	---	---	---
PCBs	PCB-1268	11100-14-4	---	---	1,000	---	---	ug/Kg	---	---	---	---	---	---	---
PCBs	Total PCB	1336-36-3	230	23,000	1,000	---	500	ug/Kg	64 JQ	40 JQ	280 JK	30 JQ	---	56 JQ	---



Notes:

- 1,180** = Yellow highlighting indicates result that exceeds listed screening levels.
- 1,180** = Bold text indicates a detected result.
- = Not Applicable
- CAS = Chemical Abstracts Service
- EPA RML = Environmental Protection Agency (EPA) Removal Management Levels (RML), 40 CFR Part 300, November 2019
- EPA RSL = Environmental Protection Agency (EPA) Regional Screening Levels (RSL), 40 CFR Part 300, November 2019
  - J = The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
  - K = The bias of the sample is not known.
- PCBs = Polychlorinated Biphenyls (PCBs), EPA Method 8082A by GC/ECD
  - Q = Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.
  - U = The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- ug/Kg = micrograms per kilogram
- WA MTCA Method A = Washington State (WA) Model Toxics Control Act (MTCA) Cleanup Regulation Method A (unrestricted land use) value from the Cleanup and Risk Calculations tables (CLARC), chapter 173-340 WAC, August 2015
- WA MTCA Method B = Washington State (WA) Model Toxics Control Act (MTCA) Cleanup Regulation Method B (unrestricted land use) value from the Cleanup and Risk Calculations tables (CLARC), chapter 173-340 WAC, August 2015

**Table C-10**  
**2019 B3 SVOC Soil Analytical Results**  
**May Creek Landfill**  
**15753 SE Renton Issaquah Rd**  
**Renton, WA**

Group	Chemical Analysis	CAS Number	EPA RSL	EPA RML	WA MTCA Method A	WA MTCA Method B (Noncancer, Direct Contact)	WA MTCA Method B (Cancer, Direct Contact)	Date:	7/17/2019	7/17/2019	7/17/2019	7/17/2019	7/17/2019	8/7/2019	8/7/2019
								Sampling Depth (feet):	2 - 3	1 - 2	2 - 3	2 - 3	1 - 2	1 - 2	1 - 2
								EPA Sample Number:	19070148	19070149	19070150	19070152	19070151	19070171	19070172
								Location:	B31909SB23	B31910SB12	B31911SB23	Field Duplicate of B31911SB23	B31912SB12	B31925SB12	Field Duplicate of B31925SB12
								Removal Status:	Excavated	Unexcavated	Excavated	Excavated	Excavated	Unexcavated	Unexcavated
								Units	Result	Result	Result	Result	Result	Result	Result
SVOCs	1,2,4-Trichlorobenzene	120-82-1	24,000	170,000	---	800,000	34,000	ug/Kg	310 U	580 U	260 U	540 U	580 U	610 U	630 U
SVOCs	1,2-Dichlorobenzene	95-50-1	1,800,000	5,400,000	---	7,200,000	---	ug/Kg	310 U	580 U	260 U	540 U	580 U	610 U	630 U
SVOCs	1,3-Dichlorobenzene	541-73-1	---	---	---	---	---	ug/Kg	310 U	580 U	260 U	540 U	580 U	610 U	630 U
SVOCs	1,4-Dichlorobenzene	106-46-7	2,600	260,000	---	5,600,000	190,000	ug/Kg	310 U	580 U	260 U	540 U	580 U	610 U	630 U
SVOCs	1-Methylnaphthalene	90-12-0	18,000	1,800,000	---	5,600,000	34,000	ug/kg	180 U	350 U	<b>81 JQ</b>	<b>260 JQ</b>	350 U	370 U	380 U
SVOCs	2,4,5-Trichlorophenol	95-95-4	6,300,000	19,000,000	---	8,000,000	---	ug/Kg	1,200 U	2,300 U	1,000 U	2,200 U	2,300 U	2,500 U	2,500 U
SVOCs	2,4,6-Trichlorophenol	88-06-2	49,000	190,000	---	80,000	91,000	ug/Kg	920 U	1,700 U	790 U	1,600 U	1,700 U	1,800 U	1,900 U
SVOCs	2,4-Dichlorophenol	120-83-2	190,000	570,000	---	240,000	---	ug/Kg	610 U	1,200 U	520 U	1,100 U	1,200 U	1,200 U	1,300 U
SVOCs	2,4-Dimethylphenol	105-67-9	1,300,000	3,800,000	---	1,600,000	---	ug/Kg	610 U	1,200 U	520 U	1,100 U	1,200 U	1,200 U	1,300 U
SVOCs	2,4-Dinitrophenol	51-28-5	130,000	380,000	---	160,000	---	ug/Kg	6,100 U	12,000 U	5,200 U	11,000 U	12,000 U	12,000 U	13,000 U
SVOCs	2,4-Dinitrotoluene	121-14-2	1,700	170,000	---	160,000	3,200	ug/Kg	1,200 U	2,300 U	1,000 U	2,200 U	2,300 U	2,500 U	2,500 U
SVOCs	2,6-Dinitrotoluene	606-20-2	360	36,000	---	24,000	670	ug/Kg	920 U	1,700 U	790 U	1,600 U	1,700 U	1,800 U	1,900 U
SVOCs	2-Chloronaphthalene	91-58-7	4,800,000	14,000,000	---	6,400,000	---	ug/Kg	150 U	290 U	130 U	270 U	290 U	310 U	320 U
SVOCs	2-Chlorophenol	95-57-8	390,000	1,200,000	---	400,000	---	ug/Kg	1,200 U	2,300 U	1,000 U	2,200 U	2,300 U	2,500 U	2,500 U
SVOCs	2-Methylnaphthalene	91-57-6	240,000	720,000	---	320,000	---	ug/Kg	310 U	580 U	<b>65 JQ</b>	<b>220 JQ</b>	580 U	610 U	630 U
SVOCs	2-Methylphenol	95-48-7	3,200,000	9,500,000	---	4,000,000	---	ug/Kg	920 U	1,700 U	790 U	1,600 U	1,700 U	1,800 U	1,900 U
SVOCs	2-Nitroaniline	88-74-4	630,000	1,900,000	---	800,000	---	ug/Kg	610 U	1,200 U	520 U	1,100 U	1,200 U	1,200 U	1,300 U
SVOCs	2-Nitrophenol	88-75-5	---	---	---	---	---	ug/Kg	1,200 U	2,300 U	1,000 U	2,200 U	2,300 U	2,500 U	2,500 U
SVOCs	3 & 4 Methylphenol	15831-10-4	---	---	---	---	---	ug/kg	1,200 U	2,300 U	1,000 U	2,200 U	2,300 U	2,500 U	2,500 U
SVOCs	3,3'-Dichlorobenzidine	91-94-1	1,200	120,000	---	---	2,200	ug/Kg	2,500 U	4,700 U	2,100 U	4,300 U	4,600 U	4,900 U	5,100 U
SVOCs	3-Nitroaniline	99-09-2	---	---	---	---	---	ug/Kg	1,200 U	2,300 U	1,000 U	2,200 U	2,300 U	2,500 U	2,500 U
SVOCs	4,6-Dinitro-2-methylphenol	534-52-1	5,100	15,000	---	6,400	---	ug/Kg	6,100 U	12,000 U	5,200 U	11,000 U	12,000 U	12,000 U	13,000 U
SVOCs	4-Bromophenyl phenyl ether	101-55-3	---	---	---	---	---	ug/Kg	1,200 U	2,300 U	1,000 U	2,200 U	2,300 U	2,500 U	2,500 U
SVOCs	4-Chloro-3-methylphenol	59-50-7	6,300,000	19,000,000	---	8,000,000	---	ug/Kg	920 U	1,700 U	790 U	1,600 U	1,700 U	1,800 U	1,900 U
SVOCs	4-Chloroaniline	106-47-8	2,700	270,000	---	320,000	5,000	ug/Kg	9,200 U	17,000 U	7,900 U	16,000 U	17,000 U	18,000 U	19,000 U
SVOCs	4-Chlorophenyl phenyl ether	7005-72-3	---	---	---	---	---	ug/Kg	1,200 U	2,300 U	1,000 U	2,200 U	2,300 U	2,500 U	2,500 U
SVOCs	4-Nitroaniline	100-01-6	27,000	760,000	---	---	---	ug/Kg	920 UJL	1,700 UJL	790 UJL	1,600 UJL	1,700 UJL	1,800 U	1,900 U
SVOCs	4-Nitrophenol	100-02-7	---	---	---	---	---	ug/Kg	9,200 UJL	17,000 UJL	7,900 UJL	16,000 UJL	17,000 UJL	18,000 U	19,000 U
SVOCs	Acenaphthene	83-32-9	3,600,000	11,000,000	---	4,800,000	---	ug/Kg	<b>32 JQ</b>	290 U	130 U	270 U	290 U	310 U	320 U
SVOCs	Acenaphthylene	208-96-8	---	---	---	---	---	ug/Kg	150 U	290 U	130 U	270 U	290 U	310 U	320 U
SVOCs	Anthracene	120-12-7	18,000,000	54,000,000	---	24,000,000	---	ug/Kg	<b>56 JQ</b>	<b>66 JQ</b>	130 U	270 U	<b>140 JQ</b>	<b>71 JQ</b>	320 U
SVOCs	Benzo[a]anthracene	56-55-3	1,100	110,000	---	---	---	ug/Kg	<b>200</b>	<b>230 JQ</b>	130 U	270 U	<b>310</b>	<b>84 JQ</b>	320 U
SVOCs	Benzo[a]pyrene	50-32-8	110	11,000	100	24,000	190	ug/Kg	<b>230 JQ</b>	<b>270 JQ</b>	310 U	650 U	<b>340 JQ</b>	740 U	760 U
SVOCs	Benzo[b]fluoranthene	205-99-2	1,100	110,000	---	---	---	ug/Kg	<b>320</b>	<b>350</b>	130 U	270 U	<b>520</b>	310 U	320 U
SVOCs	Benzo[g,h,i]perylene	191-24-2	---	---	---	---	---	ug/Kg	<b>270 JQ</b>	<b>210 JQ</b>	<b>77 JQ</b>	650 U	<b>330 JQ</b>	740 U	<b>190 JQ</b>
SVOCs	Benzo[k]fluoranthene	207-08-9	11,000	1,100,000	---	---	---	ug/Kg	<b>110 JQ</b>	<b>190 JQ</b>	310 U	650 U	<b>220 JQ</b>	740 U	760 U
SVOCs	Benzoic acid	65-85-0	250,000,000	760,000,000	---	320,000,000	---	ug/Kg	12,000 U	23,000 U	10,000 U	22,000 U	23,000 U	25,000 U	25,000 U

**Table C-10**  
**2019 B3 SVOC Soil Analytical Results**  
**May Creek Landfill**  
**15753 SE Renton Issaquah Rd**  
**Renton, WA**

Group	Chemical Analysis	CAS Number	EPA RSL	EPA RML	WA MTCA Method A	WA MTCA Method B (Noncancer, Direct Contact)	WA MTCA Method B (Cancer, Direct Contact)	Date:	7/17/2019	7/17/2019	7/17/2019	7/17/2019	7/17/2019	8/7/2019	8/7/2019
								Sampling Depth (feet):	2 - 3	1 - 2	2 - 3	2 - 3	1 - 2	1 - 2	1 - 2
								EPA Sample Number:	19070148	19070149	19070150	19070152	19070151	19070171	19070172
								Location:	B31909SB23	B31910SB12	B31911SB23	Field Duplicate of B31911SB23	B31912SB12	B31925SB12	Field Duplicate of B31925SB12
								Removal Status:	Excavated	Unexcavated	Excavated	Excavated	Excavated	Unexcavated	Unexcavated
								Units	Result	Result	Result	Result	Result	Result	Result
SVOCs	Benzyl alcohol	100-51-6	6,300,000	19,000,000	--	8,000,000	--	ug/Kg	3,100 U	5,800 U	2,600 U	5,400 U	5,800 U	6,100 U	6,300 U
SVOCs	Bis(2-chloroethoxy)methane	111-91-1	190,000	570,000	--	--	--	ug/Kg	1,200 U	2,300 U	1,000 U	2,200 U	2,300 U	2,500 U	2,500 U
SVOCs	Bis(2-chloroethyl)ether	111-44-4	230	23,000	--	--	910	ug/Kg	610 U	1,200 U	520 U	1,100 U	1,200 U	1,200 U	1,300 U
SVOCs	Bis(2-ethylhexyl) phthalate	117-81-7	39,000	3,800,000	--	1,600,000	71,000	ug/Kg	<b>1,000 JQ</b>	<b>840 JQ</b>	<b>560 JQ</b>	<b>790 JQ</b>	<b>1,100 JQ</b>	<b>950 JQ</b>	<b>960 JQ</b>
SVOCs	bis(chloroisopropyl) ether	108-60-1	3,100,000	9,400,000	--	3,200,000	14,000	ug/Kg	1,200 U	2,300 U	1,000 U	2,200 U	2,300 U	2,500 U	2,500 U
SVOCs	Butyl benzyl phthalate	85-68-7	290,000	29,000,000	--	16,000,000	530,000	ug/Kg	<b>500 JQ</b>	<b>990 JQ</b>	1,000 U	2,200 U	2,300 U	<b>7,800</b>	2,500 U
SVOCs	Carbazole	86-74-8	--	--	--	--	--	ug/Kg	920 U	1,700 U	790 U	1,600 U	1,700 U	1,800 U	1,900 U
SVOCs	Chrysene	218-01-9	110,000	11,000,000	--	--	--	ug/Kg	<b>370</b>	<b>420 JQ</b>	310 U	650 U	<b>520 JQ</b>	740 U	760 U
SVOCs	Dibenz(a,h)anthracene	53-70-3	110	11,000	--	--	--	ug/Kg	310 U	580 U	260 U	540 U	580 U	610 U	630 U
SVOCs	Dibenzofuran	132-64-9	73,000	220,000	--	80,000	--	ug/Kg	920 U	1,700 U	790 U	1,600 U	1,700 U	1,800 U	1,900 U
SVOCs	Diethyl phthalate	84-66-2	51,000,000	150,000,000	--	64,000,000	--	ug/Kg	9,200 U	17,000 U	7,900 U	16,000 U	17,000 U	18,000 U	19,000 U
SVOCs	Dimethyl phthalate	131-11-3	--	--	--	--	--	ug/Kg	920 U	1,700 U	790 U	1,600 U	1,700 U	1,800 U	1,900 U
SVOCs	Di-n-butyl phthalate	84-74-2	6,300,000	19,000,000	--	8,000,000	--	ug/Kg	3,100 U	5,800 U	2,600 U	5,400 U	<b>2,200 JQ</b>	6,100 U	6,300 U
SVOCs	Di-n-octyl phthalate	117-84-0	630,000	1,900,000	--	800,000	--	ug/Kg	920 U	1,700 U	790 U	1,600 U	1,700 U	1,800 U	1,900 U
SVOCs	Fluoranthene	206-44-0	2,400,000	7,200,000	--	3,200,000	--	ug/Kg	<b>670</b>	<b>590</b>	<b>100 JQ</b>	270 U	<b>850</b>	<b>200 JQ</b>	<b>150 JQ</b>
SVOCs	Fluorene	86-73-7	2,400,000	7,200,000	--	3,200,000	--	ug/Kg	150 U	290 U	130 U	270 U	290 U	310 U	320 U
SVOCs	Hexachlorobenzene	118-74-1	210	21,000	--	64,000	630	ug/Kg	310 U	580 U	260 U	540 U	580 U	610 U	630 U
SVOCs	Hexachlorobutadiene	87-68-3	1,200	120,000	--	80,000	13,000	ug/Kg	310 U	580 U	260 U	540 U	580 U	610 U	630 U
SVOCs	Hexachlorocyclopentadiene	77-47-4	1,800	5,300	--	480,000	--	ug/Kg	610 U	1,200 U	520 U	1,100 U	1,200 U	1,200 U	1,300 U
SVOCs	Hexachloroethane	67-72-1	1,800	130,000	--	56,000	25,000	ug/Kg	920 U	1,700 U	790 U	1,600 U	1,700 U	1,800 U	1,900 U
SVOCs	Indeno[1,2,3-cd]pyrene	193-39-5	1,100	110,000	--	--	--	ug/Kg	<b>260</b>	<b>270 JQ</b>	210 U	430 U	<b>400 JQ</b>	490 U	510 U
SVOCs	Isophorone	78-59-1	570,000	38,000,000	--	16,000,000	1,100,000	ug/Kg	920 U	1,700 U	790 U	1,600 U	1,700 U	1,800 U	1,900 U
SVOCs	Naphthalene	91-20-3	3,800	380,000	5,000	1,600,000	--	ug/Kg	150 U	290 U	130 U	270 U	290 U	310 U	320 U
SVOCs	Nitrobenzene	98-95-3	5,100	380,000	--	160,000	--	ug/Kg	1,200 U	2,300 U	1,000 U	2,200 U	2,300 U	2,500 U	2,500 U
SVOCs	N-Nitrosodi-n-propylamine	621-64-7	78	7,800	--	--	140	ug/Kg	<b>R</b>	<b>R</b>	<b>R</b>	<b>R</b>	<b>R</b>	2,500 U	2,500 U
SVOCs	N-Nitrosodiphenylamine	86-30-6	110,000	11,000,000	--	--	200,000	ug/Kg	370 U	700 U	310 U	650 U	690 U	740 U	760 U
SVOCs	Pentachlorophenol	87-86-5	1,000	100,000	--	400,000	2,500	ug/Kg	2,800 U	5,200 U	2,400 U	4,900 U	5,200 U	5,500 U	5,700 U
SVOCs	Phenanthrene	85-01-8	--	--	--	--	--	ug/Kg	<b>330 JQ</b>	<b>170 JQ</b>	310 U	650 U	<b>350 JQ</b>	740 U	760 U
SVOCs	Phenol	108-95-2	19,000,000	57,000,000	--	24,000,000	--	ug/Kg	920 U	1,700 U	790 U	1,600 U	1,700 U	1,800 U	1,900 U
SVOCs	Pyrene	129-00-0	1,800,000	5,400,000	--	2,400,000	--	ug/Kg	<b>660</b>	<b>630 JQ</b>	<b>150 JQ</b>	<b>200 JQ</b>	<b>900</b>	<b>190 JQ</b>	<b>180 JQ</b>

Table C-10 2019 B3 SVOC Soil Analytical Results May Creek Landfill 15753 SE Renton Issaquah Rd Renton, WA													
Group	Chemical Analysis	CAS Number	EPA RSL	EPA RML	WA MTCA Method A	WA MTCA Method B (Noncancer, Direct Contact)	WA MTCA Method B (Cancer, Direct Contact)	Date:	8/7/2019	8/7/2019	8/7/2019	8/7/2019	8/7/2019
								Sampling Depth (feet):	1 - 2	2 - 3	1 - 2	2 - 3	2 - 3
								EPA Sample Number:	19070173	19070174	19070175	19070176	19070177
								Location:	B31926SB12	B31927SB23	B31928SB12	B31929SB23	B31930SB23
								Removal Status:	Unexcavated	Unexcavated	Unexcavated	Unexcavated	Unexcavated
								Units	Result	Result	Result	Result	Result
SVOCs	1,2,4-Trichlorobenzene	120-82-1	24,000	170,000	--	800,000	34,000	ug/Kg	1,400 U	590 U	280 U	540 U	530 U
SVOCs	1,2-Dichlorobenzene	95-50-1	1,800,000	5,400,000	--	7,200,000	--	ug/Kg	1,400 U	590 U	280 U	540 U	530 U
SVOCs	1,3-Dichlorobenzene	541-73-1	--	--	--	--	--	ug/Kg	1,400 U	590 U	280 U	540 U	530 U
SVOCs	1,4-Dichlorobenzene	106-46-7	2,600	260,000	--	5,600,000	190,000	ug/Kg	1,400 U	590 U	280 U	540 U	530 U
SVOCs	1-Methylnaphthalene	90-12-0	18,000	1,800,000	--	5,600,000	34,000	ug/kg	860 U	350 U	170 U	330 U	320 U
SVOCs	2,4,5-Trichlorophenol	95-95-4	6,300,000	19,000,000	--	8,000,000	--	ug/Kg	5,700 U	2,300 U	1,100 U	2,200 U	2,100 U
SVOCs	2,4,6-Trichlorophenol	88-06-2	49,000	190,000	--	80,000	91,000	ug/Kg	4,300 U	1,800 U	830 U	1,600 U	1,600 U
SVOCs	2,4-Dichlorophenol	120-83-2	190,000	570,000	--	240,000	--	ug/Kg	2,900 U	1,200 U	550 U	1,100 U	1,100 U
SVOCs	2,4-Dimethylphenol	105-67-9	1,300,000	3,800,000	--	1,600,000	--	ug/Kg	2,900 U	1,200 U	550 U	1,100 U	1,100 U
SVOCs	2,4-Dinitrophenol	51-28-5	130,000	380,000	--	160,000	--	ug/Kg	29,000 U	12,000 U	5,500 U	11,000 U	11,000 U
SVOCs	2,4-Dinitrotoluene	121-14-2	1,700	170,000	--	160,000	3,200	ug/Kg	5,700 U	2,300 U	1,100 U	2,200 U	2,100 U
SVOCs	2,6-Dinitrotoluene	606-20-2	360	36,000	--	24,000	670	ug/Kg	4,300 U	1,800 U	830 U	1,600 U	1,600 U
SVOCs	2-Chloronaphthalene	91-58-7	4,800,000	14,000,000	--	6,400,000	--	ug/Kg	710 U	290 U	140 U	270 U	260 U
SVOCs	2-Chlorophenol	95-57-8	390,000	1,200,000	--	400,000	--	ug/Kg	5,700 U	2,300 U	1,100 U	2,200 U	2,100 U
SVOCs	2-Methylnaphthalene	91-57-6	240,000	720,000	--	320,000	--	ug/Kg	1,400 U	590 U	280 U	540 U	530 U
SVOCs	2-Methylphenol	95-48-7	3,200,000	9,500,000	--	4,000,000	--	ug/Kg	4,300 U	1,800 U	830 U	1,600 U	1,600 U
SVOCs	2-Nitroaniline	88-74-4	630,000	1,900,000	--	800,000	--	ug/Kg	2,900 U	1,200 U	550 U	1,100 U	1,100 U
SVOCs	2-Nitrophenol	88-75-5	--	--	--	--	--	ug/Kg	5,700 U	2,300 U	1,100 U	2,200 U	2,100 U
SVOCs	3 & 4 Methylphenol	15831-10-4	--	--	--	--	--	ug/kg	5,700 U	2,300 U	1,100 U	2,200 U	2,100 U
SVOCs	3,3'-Dichlorobenzidine	91-94-1	1,200	120,000	--	--	2,200	ug/Kg	11,000 U	4,700 U	2,200 U	4,400 U	4,200 U
SVOCs	3-Nitroaniline	99-09-2	--	--	--	--	--	ug/Kg	5,700 U	2,300 U	1,100 U	2,200 U	2,100 U
SVOCs	4,6-Dinitro-2-methylphenol	534-52-1	5,100	15,000	--	6,400	--	ug/Kg	29,000 U	12,000 U	5,500 U	11,000 U	11,000 U
SVOCs	4-Bromophenyl phenyl ether	101-55-3	--	--	--	--	--	ug/Kg	5,700 U	2,300 U	1,100 U	2,200 U	2,100 U
SVOCs	4-Chloro-3-methylphenol	59-50-7	6,300,000	19,000,000	--	8,000,000	--	ug/Kg	4,300 U	1,800 U	830 U	1,600 U	1,600 U
SVOCs	4-Chloroaniline	106-47-8	2,700	270,000	--	320,000	5,000	ug/Kg	43,000 U	18,000 U	8,300 U	16,000 U	16,000 U
SVOCs	4-Chlorophenyl phenyl ether	7005-72-3	--	--	--	--	--	ug/Kg	5,700 U	2,300 U	1,100 U	2,200 U	2,100 U
SVOCs	4-Nitroaniline	100-01-6	27,000	760,000	--	--	--	ug/Kg	4,300 U	1,800 U	830 U	1,600 U	1,600 U
SVOCs	4-Nitrophenol	100-02-7	--	--	--	--	--	ug/Kg	43,000 U	18,000 U	8,300 U	16,000 U	16,000 U
SVOCs	Acenaphthene	83-32-9	3,600,000	11,000,000	--	4,800,000	--	ug/Kg	710 U	170 JQ	140 U	270 U	260 U
SVOCs	Acenaphthylene	208-96-8	--	--	--	--	--	ug/Kg	710 U	290 U	140 U	270 U	260 U
SVOCs	Anthracene	120-12-7	18,000,000	54,000,000	--	24,000,000	--	ug/Kg	710 U	380	29 JQ	270 U	260 U
SVOCs	Benzo[a]anthracene	56-55-3	1,100	110,000	--	--	--	ug/Kg	710 U	770	82 JQ	60 JQ	260 U
SVOCs	Benzo[a]pyrene	50-32-8	110	11,000	100	24,000	190	ug/Kg	1,700 U	840	130 JQ	160 JQ	630 U
SVOCs	Benzo[b]fluoranthene	205-99-2	1,100	110,000	--	--	--	ug/Kg	710 U	1,200	190	270 U	260 U
SVOCs	Benzo[g,h,i]perylene	191-24-2	--	--	--	--	--	ug/Kg	1,700 U	460 JQ	190 JQ	160 JQ	630 U
SVOCs	Benzo[k]fluoranthene	207-08-9	11,000	1,100,000	--	--	--	ug/Kg	1,700 U	460 JQ	83 JQ	650 U	630 U
SVOCs	Benzoic acid	65-85-0	250,000,000	760,000,000	--	320,000,000	--	ug/Kg	57,000 U	23,000 U	11,000 U	22,000 U	21,000 U



Table C-10 2019 B3 SVOC Soil Analytical Results May Creek Landfill 15753 SE Renton Issaquah Rd Renton, WA													
Group	Chemical Analysis	CAS Number	EPA RSL	EPA RML	WA MTCA Method A	WA MTCA Method B (Noncancer, Direct Contact)	WA MTCA Method B (Cancer, Direct Contact)	Date:	8/7/2019	8/7/2019	8/7/2019	8/7/2019	8/7/2019
								Sampling Depth (feet):	1 - 2	2 - 3	1 - 2	2 - 3	2 - 3
								EPA Sample Number:	19070173	19070174	19070175	19070176	19070177
								Location:	B31926SB12	B31927SB23	B31928SB12	B31929SB23	B31930SB23
								Removal Status:	Unexcavated	Unexcavated	Unexcavated	Unexcavated	Unexcavated
								Units	Result	Result	Result	Result	Result
SVOCs	Benzyl alcohol	100-51-6	6,300,000	19,000,000	--	8,000,000	--	ug/Kg	14,000 U	5,900 U	2,800 U	5,400 U	5,300 U
SVOCs	Bis(2-chloroethoxy)methane	111-91-1	190,000	570,000	--	--	--	ug/Kg	5,700 U	2,300 U	1,100 U	2,200 U	2,100 U
SVOCs	Bis(2-chloroethyl)ether	111-44-4	230	23,000	--	--	910	ug/Kg	2,900 U	1,200 U	550 U	1,100 U	1,100 U
SVOCs	Bis(2-ethylhexyl) phthalate	117-81-7	39,000	3,800,000	--	1,600,000	71,000	ug/Kg	17,000 U	7,000 U	3,300 U	780 JQ	6,300 U
SVOCs	bis(chloroisopropyl) ether	108-60-1	3,100,000	9,400,000	--	3,200,000	14,000	ug/Kg	5,700 U	2,300 U	1,100 U	2,200 U	2,100 U
SVOCs	Butyl benzyl phthalate	85-68-7	290,000	29,000,000	--	16,000,000	530,000	ug/Kg	5,700 U	2,300 U	1,100 U	770 JQ	560 JQ
SVOCs	Carbazole	86-74-8	--	--	--	--	--	ug/Kg	4,300 U	1,800 U	830 U	1,600 U	1,600 U
SVOCs	Chrysene	218-01-9	110,000	11,000,000	--	--	--	ug/Kg	1,700 U	970	330 U	650 U	630 U
SVOCs	Dibenz(a,h)anthracene	53-70-3	110	11,000	--	--	--	ug/Kg	1,400 U	590 U	280 U	540 U	530 U
SVOCs	Dibenzofuran	132-64-9	73,000	220,000	--	80,000	--	ug/Kg	4,300 U	1,800 U	830 U	1,600 U	1,600 U
SVOCs	Diethyl phthalate	84-66-2	51,000,000	150,000,000	--	64,000,000	--	ug/Kg	43,000 U	18,000 U	8,300 U	16,000 U	16,000 U
SVOCs	Dimethyl phthalate	131-11-3	--	--	--	--	--	ug/Kg	4,300 U	1,800 U	830 U	1,600 U	1,600 U
SVOCs	Di-n-butyl phthalate	84-74-2	6,300,000	19,000,000	--	8,000,000	--	ug/Kg	14,000 U	5,900 U	2,800 U	5,400 U	5,300 U
SVOCs	Di-n-octyl phthalate	117-84-0	630,000	1,900,000	--	800,000	--	ug/Kg	4,300 U	1,800 U	830 U	1,600 U	1,600 U
SVOCs	Fluoranthene	206-44-0	2,400,000	7,200,000	--	3,200,000	--	ug/Kg	710 U	2,400	230	160 JQ	130 JQ
SVOCs	Fluorene	86-73-7	2,400,000	7,200,000	--	3,200,000	--	ug/Kg	710 U	140 JQ	140 U	270 U	260 U
SVOCs	Hexachlorobenzene	118-74-1	210	21,000	--	64,000	630	ug/Kg	1,400 U	590 U	280 U	540 U	530 U
SVOCs	Hexachlorobutadiene	87-68-3	1,200	120,000	--	80,000	13,000	ug/Kg	1,400 U	590 U	280 U	540 U	530 U
SVOCs	Hexachlorocyclopentadiene	77-47-4	1,800	5,300	--	480,000	--	ug/Kg	2,900 U	1,200 U	550 U	1,100 U	1,100 U
SVOCs	Hexachloroethane	67-72-1	1,800	130,000	--	56,000	25,000	ug/Kg	4,300 U	1,800 U	830 U	1,600 U	1,600 U
SVOCs	Indeno[1,2,3-cd]pyrene	193-39-5	1,100	110,000	--	--	--	ug/Kg	1,100 U	740	88 JQ	110 JQ	420 U
SVOCs	Isophorone	78-59-1	570,000	38,000,000	--	16,000,000	1,100,000	ug/Kg	4,300 U	1,800 U	830 U	1,600 U	1,600 U
SVOCs	Naphthalene	91-20-3	3,800	380,000	5,000	1,600,000	--	ug/Kg	710 U	290 U	140 U	270 U	260 U
SVOCs	Nitrobenzene	98-95-3	5,100	380,000	--	160,000	--	ug/Kg	5,700 U	2,300 U	1,100 U	2,200 U	2,100 U
SVOCs	N-Nitrosodi-n-propylamine	621-64-7	78	7,800	--	--	140	ug/Kg	5,700 U	2,300 U	1,100 U	2,200 U	2,100 U
SVOCs	N-Nitrosodiphenylamine	86-30-6	110,000	11,000,000	--	--	200,000	ug/Kg	1,700 U	700 U	330 U	650 U	630 U
SVOCs	Pentachlorophenol	87-86-5	1,000	100,000	--	400,000	2,500	ug/Kg	13,000 U	5,300 U	2,500 U	4,900 U	4,800 U
SVOCs	Phenanthrene	85-01-8	--	--	--	--	--	ug/Kg	1,700 U	1,400	330 U	650 U	630 U
SVOCs	Phenol	108-95-2	19,000,000	57,000,000	--	24,000,000	--	ug/Kg	4,300 U	1,800 U	830 U	1,600 U	1,600 U
SVOCs	Pyrene	129-00-0	1,800,000	5,400,000	--	2,400,000	--	ug/Kg	210 JQ	2,400	220 JQ	150 JQ	130 JQ

Notes:

**1,180** = Yellow highlighting indicates result that exceeds listed screening levels.

**1,180** = Bold text indicates a detected result.

— = Not Applicable

CAS = Chemical Abstracts Service

EPA RML = Environmental Protection Agency (EPA) Removal Management Levels (RML), 40 CFR Part 300, November 2019

EPA RSL = Environmental Protection Agency (EPA) Regional Screening Levels (RSL), 40 CFR Part 300, November 2019

J = The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

K = The bias of the sample is not known.

L = The sample result is biased low.

Q = Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.

R = The data is rejected and unusable. The analyte may or may not be present in the sample.

SVOCs = Semi-Volatile Organic Compounds, EPA Method 8270D by GC/MS

U = The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.

ug/Kg = micrograms per kilogram

WA MTCA Method A = Washington State (WA) Model Toxics Control Act (MTCA) Cleanup Regulation Method A (unrestricted land use) value from the Cleanup and Risk Calculations tables (CLARC), chapter 173-340 WAC, August 2015

WA MTCA Method B = Washington State (WA) Model Toxics Control Act (MTCA) Cleanup Regulation Method B (unrestricted land use) value from the Cleanup and Risk Calculations tables (CLARC), chapter 173-340 WAC, August 2015

Table C-11 2019 B3 Metal, Pesticide, and VOC Soil Analytical Results May Creek Landfill 15753 SE Renton Issaquah Rd Renton, WA													
Group	Chemical Analysis	CAS Number	EPA RSL	EPA RML	WA MTCA Method A	WA MTCA Method B (Noncancer, Direct Contact)	WA MTCA Method B (Cancer, Direct Contact)	Date:	7/17/2019	7/17/2019	7/17/2019	7/17/2019	7/17/2019
								Sampling Depth (feet):	2 - 3	1 - 2	2 - 3	2 - 3	1 - 2
								EPA Sample Number:	19070148	19070149	19070150	19070152	19070151
								Location:	B31909SB23	B31910SB12	B31911SB23	Field Duplicate of B31911SB23	B31912SB12
								Removal Status:	Excavated	Unexcavated	Excavated	Excavated	Excavated
								Units	Result	Result	Result	Result	Result
Metals	Aluminum	7429-90-5	77,000	230,000	—	80,000	—	mg/Kg	7,000	7,000	13,000	12,000	8,500
Metals	Antimony	7440-36-0	31	94	—	32	—	mg/Kg	2.8 U	2.6 U	2.6 U	2.4 U	2.7 U
Metals	Arsenic	7440-38-2	0.68	68	20	24	0.67	mg/Kg	5.2	4.8	5.4	6.2	5.1
Metals	Barium	7440-39-3	15,000	46,000	—	16,000	—	mg/Kg	54	46	67	76	53
Metals	Beryllium	7440-41-7	160	470	—	160	—	mg/Kg	0.34 JQ	0.31 JQ	1.3 U	1.2 U	1.3 U
Metals	Cadmium	7440-43-9	71	210	2	80	—	mg/Kg	0.44 JQ	0.29 JQ	0.21 JQ	0.23 JQ	0.40 JQ
Metals	Calcium	7440-70-2	—	—	—	—	—	mg/Kg	9,400	8,500	7,200	7,400	14,000
Metals	Chromium	7440-47-3	—	—	2,000	120,000	—	mg/Kg	19	19	41	40	22
Metals	Cobalt	7440-48-4	23	70	—	—	—	mg/Kg	4.3	4.3	8.3	9.7	6.5
Metals	Copper	7440-50-8	3,100	9,400	—	3,200	—	mg/Kg	31	21	41	65	42
Metals	Iron	7439-89-6	55,000	160,000	—	56,000	—	mg/Kg	10,000	9,700	17,000	21,000	15,000
Metals	Lead	7439-92-1	400	400	250	—	—	mg/Kg	43	21	24	27	24
Metals	Magnesium	7439-95-4	—	—	—	—	—	mg/Kg	3,600	2,800	5,500	5,300	4,300
Metals	Manganese	7439-96-5	1,800	5,500	—	3,700	—	mg/Kg	210	200	300	290	250
Metals	Mercury	7439-97-6	11,000	33,000	2,000	—	—	ug/Kg	56 JQ	42 JQ	74	44 JQ	42 JQ
Metals	Nickel	7440-02-0	1,500	4,600	—	1,600	—	mg/Kg	18	15	34	30	24
Metals	Potassium	7440-09-7	—	—	—	—	—	mg/Kg	560	440	730	760	440
Metals	Selenium	7782-49-2	390	1,200	—	400	—	mg/Kg	5.6 U	5.2 U	5.2 U	4.8 U	5.3 U
Metals	Silver	7440-22-4	390	1,200	—	400	—	mg/Kg	0.23 JQ	0.16 JQ	0.25 JQ	0.35 JQ	0.23 JQ
Metals	Sodium	7440-23-5	—	—	—	—	—	mg/Kg	300	260	390	430	370
Metals	Thallium	7440-28-0	0.78	2.3	—	0.8	—	mg/Kg	2.8 U	2.6 U	2.6 U	2.4 U	2.7 U
Metals	Vanadium	7440-62-2	390	1,200	—	400	—	mg/Kg	25	25	44	42	32
Metals	Zinc	7440-66-6	23,000	70,000	—	24,000	—	mg/Kg	140	86	100	140	120
Pesticides	4,4'-DDD	72-54-8	1,900	5,700	—	2,400	4,200	ug/kg	7.6 U	7.3 U	11	7.4 U	7.5 U
Pesticides	4,4'-DDE	72-55-9	2,000	70,000	—	24,000	2,900	ug/kg	7.6 U	7.3 U	6.5 JQ	5.3 JQ	7.5 U
Pesticides	4,4'-DDT	50-29-3	1,900	110,000	3,000	40,000	2,900	ug/kg	7.6 U	7.3 U	7.1 U	7.4 U	7.5 U
Pesticides	Aldrin	309-00-2	39	3,900	—	2,400	59	ug/kg	11 U	11 U	11 U	11 U	11 U
Pesticides	alpha-BHC	319-84-6	86	8,600	—	640,000	160	ug/kg	7.6 U	7.3 U	7.1 U	7.4 U	7.5 U
Pesticides	beta-BHC	319-85-7	300	30,000	—	—	560	ug/kg	19 U	18 U	18 U	18 U	19 U
Pesticides	cis-Chlordane	5103-71-9	—	—	—	—	—	ug/kg	7.6 U	7.3 U	7.1 U	7.4 U	7.5 U
Pesticides	delta-BHC	319-86-8	—	—	—	—	—	ug/kg	11 U	11 U	11 U	11 U	11 U
Pesticides	Dieldrin	60-57-1	34	3,400	—	4,000	63	ug/kg	1.9 JQ	2.1 JQ	4.3 JQ	4.6 JQ	2.3 JQ
Pesticides	Endosulfan I	959-98-8	—	—	—	—	—	ug/kg	7.6 U	7.3 U	7.1 U	7.4 U	7.5 U
Pesticides	Endosulfan II	33213-65-9	—	—	—	—	—	ug/kg	7.6 U	7.3 U	7.1 U	7.4 U	7.5 U
Pesticides	Endosulfan sulfate	1031-07-8	380,000	1,100,000	—	480,000	—	ug/kg	7.6 U	7.3 U	7.1 U	7.4 U	7.5 U
Pesticides	Endrin	72-20-8	19,000	57,000	—	24,000	—	ug/kg	7.6 U	7.3 U	7.1 U	7.4 U	7.5 U
Pesticides	Endrin aldehyde	7421-93-4	—	—	—	—	—	ug/kg	76 U	73 U	71 U	74 U	75 U
Pesticides	Endrin ketone	53494-70-5	—	—	—	—	—	ug/kg	7.6 U	7.3 U	7.1 U	7.4 U	7.5 U
Pesticides	gamma-BHC (Lindane)	58-89-9	570	57,000	10	24,000	910	ug/kg	7.6 U	7.3 U	7.1 U	7.4 U	7.5 U
Pesticides	Heptachlor	76-44-8	130	13,000	—	40,000	220	ug/kg	11 U	11 U	11 U	11 U	11 U
Pesticides	Heptachlor epoxide	1024-57-3	70	3,100	—	1,000	110	ug/kg	11 U	11 U	11 U	11 U	11 U
Pesticides	Methoxychlor	72-43-5	320,000	950,000	—	400,000	—	ug/kg	38 U	36 U	35 U	37 U	38 U
Pesticides	Toxaphene	8001-35-2	490	17,000	—	7,200	910	ug/kg	380 U	360 U	350 U	370 U	380 U
Pesticides	trans-Chlordane	5103-74-2	—	—	—	—	—	ug/kg	11 U	11 U	2.7 JQ	2.1 JQ	1.7 JQ

Table C-11 2019 B3 Metal, Pesticide, and VOC Soil Analytical Results May Creek Landfill 15753 SE Renton Issaquah Rd Renton, WA													
Group	Chemical Analysis	CAS Number	EPA RSL	EPA RML	WA MTCA Method A	WA MTCA Method B (Noncancer, Direct Contact)	WA MTCA Method B (Cancer, Direct Contact)	Date:	7/17/2019	7/17/2019	7/17/2019	7/17/2019	7/17/2019
								Sampling Depth (feet):	2 - 3	1 - 2	2 - 3	2 - 3	1 - 2
								EPA Sample Number:	19070148	19070149	19070150	19070152	19070151
								Location:	B31909SB23	B31910SB12	B31911SB23	Field Duplicate of B31911SB23	B31912SB12
								Removal Status:	Excavated	Unexcavated	Excavated	Excavated	Excavated
								Units	Result	Result	Result	Result	Result
VOCs	1,1,1,2-Tetrachloroethane	630-20-6	2,000	200,000	---	2,400,000	38,000	ug/Kg	3.7 U	4.0 U	3.3 U	3.0 UJK	3.6 U
VOCs	1,1,1-Trichloroethane	71-55-6	8,100,000	24,000,000	2,000	160,000,000	---	ug/Kg	2.5 U	2.6 U	2.2 U	2.0 UJK	2.4 U
VOCs	1,1,2,2-Tetrachloroethane	79-34-5	600	60,000	---	1,600,000	5,000	ug/Kg	4.9 U	5.3 U	4.3 U	4.1 UJK	4.9 U
VOCs	1,1,2-Trichloroethane	79-00-5	1,100	4,500	---	320,000	18,000	ug/Kg	2.5 U	2.6 U	2.2 U	2.0 UJK	2.4 U
VOCs	1,1-Dichloroethane	75-34-3	3,600	360,000	---	16,000,000	180,000	ug/Kg	1.2 U	1.3 U	1.1 U	1.0 UJK	1.2 U
VOCs	1,1-Dichloroethene	75-35-4	230,000	680,000	---	4,000,000	---	ug/Kg	6.2 U	6.6 U	5.4 U	5.1 UJK	6.1 U
VOCs	1,1-Dichloropropene	563-58-6	---	---	---	---	---	ug/Kg	2.5 U	2.6 U	2.2 U	2.0 UJK	2.4 U
VOCs	1,2,3-Trichlorobenzene	87-61-6	63,000	190,000	---	---	---	ug/Kg	3.7 U	4.0 U	3.3 U	3.0 UJK	3.6 U
VOCs	1,2,3-Trichloropropane	96-18-4	5.1	510	---	320,000	33	ug/Kg	6.2 U	6.6 U	5.4 U	5.1 UJK	6.1 U
VOCs	1,2,4-Trichlorobenzene	120-82-1	24,000	170,000	---	800,000	34,000	ug/Kg	2.5 U	2.6 U	2.2 U	2.0 UJK	2.4 U
VOCs	1,2,4-Trimethylbenzene	95-63-6	300,000	910,000	---	800,000	---	ug/Kg	6.2 U	6.6 U	3.7 JQ	2.6 JQ	6.1 U
VOCs	1,2-Dibromo-3-Chloropropane	96-12-8	5.3	530	---	16,000	1,300	ug/Kg	12 U	13 U	11 U	10 UJK	12 U
VOCs	1,2-Dibromoethane	106-93-4	36	3,600	5	720,000	500	ug/Kg	1.2 U	1.3 U	1.1 U	1.0 UJK	1.2 U
VOCs	1,2-Dichlorobenzene	95-50-1	1,800,000	5,400,000	---	7,200,000	---	ug/Kg	12 U	13 U	11 U	10 UJK	12 U
VOCs	1,2-Dichloroethane	107-06-2	460	46,000	---	480,000	11,000	ug/Kg	1.2 U	1.3 U	1.1 U	1.0 UJK	1.2 U
VOCs	1,2-Dichloropropane	78-87-5	2,500	47,000	---	3,200,000	27,000	ug/Kg	2.5 U	2.6 U	2.2 U	2.0 UJK	2.4 U
VOCs	1,3,5-Trimethylbenzene	108-67-8	270,000	810,000	---	800,000	---	ug/Kg	6.2 U	6.6 U	3.8 JQ	3.3 JQ	6.1 U
VOCs	1,3-Dichlorobenzene	541-73-1	---	---	---	---	---	ug/Kg	6.2 U	6.6 U	5.4 U	5.1 UJK	6.1 U
VOCs	1,3-Dichloropropane	142-28-9	1,600,000	4,700,000	---	---	---	ug/Kg	2.5 U	2.6 U	2.2 U	2.0 UJK	2.4 U
VOCs	1,4-Dichlorobenzene	106-46-7	2,600	260,000	---	5,600,000	190,000	ug/Kg	6.2 U	6.6 U	5.4 U	5.1 UJK	6.1 U
VOCs	2,2-Dichloropropane	594-20-7	---	---	---	---	---	ug/Kg	6.2 U	6.6 U	5.4 U	5.1 UJK	6.1 U
VOCs	2-Chlorotoluene	95-49-8	1,600,000	4,700,000	---	1,600,000	---	ug/Kg	6.2 U	6.6 U	5.4 U	5.1 UJK	6.1 U
VOCs	4-Chlorotoluene	106-43-4	1,600,000	4,700,000	---	---	---	ug/Kg	6.2 U	6.6 U	5.4 U	5.1 UJK	6.1 U
VOCs	4-Isopropyltoluene	99-87-6	---	---	---	---	---	ug/Kg	2.5 U	2.6 U	1.9 JQ	1.6 JQ	2.4 U
VOCs	Benzene	71-43-2	1,200	120,000	30	320,000	18,000	ug/Kg	2.5 U	2.6 U	2.2 U	2.0 UJK	2.4 U
VOCs	Bromobenzene	108-86-1	290,000	860,000	---	---	640,000	ug/Kg	12 U	13 U	11 U	10 UJK	12 U
VOCs	Bromochloromethane	74-97-5	150,000	450,000	---	---	---	ug/Kg	2.5 U	2.6 U	2.2 U	2.0 UJK	2.4 U
VOCs	Bromodichloromethane	75-27-4	290	29,000	---	1,600,000	16,000	ug/Kg	1.2 U	1.3 U	1.1 U	1.0 UJK	1.2 U
VOCs	Bromoform	75-25-2	19,000	1,900,000	---	1,600,000	130,000	ug/Kg	6.2 U	6.6 U	5.4 U	5.1 UJK	6.1 U
VOCs	Bromomethane	74-83-9	6,800	21,000	---	110,000	---	ug/Kg	1.2 U	1.3 U	1.1 U	1.0 UJK	1.2 U
VOCs	Carbon tetrachloride	56-23-5	650	65,000	---	320,000	14,000	ug/Kg	2.5 U	2.6 U	2.2 U	2.0 UJK	2.4 U
VOCs	Chlorobenzene	108-90-7	280,000	830,000	---	1,600,000	---	ug/Kg	2.5 U	2.6 U	0.32 JQ	2.0 UJK	2.4 U
VOCs	Chloroethane	75-00-3	14,000,000	41,000,000	---	---	---	ug/Kg	12 U	13 U	11 U	10 UJK	12 U
VOCs	Chloroform	67-66-3	320	32,000	---	800,000	32,000	ug/Kg	2.5 U	2.6 U	2.2 U	2.0 UJK	2.4 U
VOCs	Chloromethane	74-87-3	110,000	330,000	---	---	---	ug/Kg	6.2 U	6.6 U	5.4 U	5.1 UJK	6.1 U
VOCs	cis-1,2-Dichloroethene	156-59-2	160,000	470,000	---	160,000	---	ug/Kg	3.7 U	4.0 U	3.3 U	3.0 UJK	3.6 U
VOCs	cis-1,3-Dichloropropene	10061-01-5	---	---	---	---	---	ug/Kg	1.2 U	1.3 U	1.1 U	1.0 UJK	1.2 U
VOCs	Dibromochloromethane	124-48-1	8,300	830,000	---	1,600,000	12,000	ug/Kg	1.8 U	2.0 U	1.6 U	1.5 UJK	1.8 U
VOCs	Dibromomethane	74-95-3	24,000	71,000	---	800,000	---	ug/Kg	1.2 U	1.3 U	1.1 U	1.0 UJK	1.2 U
VOCs	Dichlorodifluoromethane	75-71-8	87,000	260,000	---	16,000,000	---	ug/Kg	2.5 U	2.6 U	2.2 U	2.0 UJK	2.4 U
VOCs	Ethylbenzene	100-41-4	5,800	580,000	6,000	8,000,000	---	ug/Kg	1.2 JQ	2.6 U	2.2 U	2.0 UJK	2.4 U
VOCs	Hexachlorobutadiene	87-68-3	1,200	120,000	---	80,000	13,000	ug/Kg	3.7 UJL	4.0 UJL	3.3 UJL	3.0 UJK	3.6 UJL
VOCs	Isopropylbenzene	98-82-8	1,900,000	5,800,000	---	8,000,000	---	ug/Kg	2.5 U	2.6 U	0.51 JQ	2.0 UJK	2.4 U
VOCs	Methyl tert-butyl ether	1634-04-4	47,000	4,700,000	100	---	560,000	ug/Kg	2.5 U	2.6 U	2.2 U	2.0 UJK	2.4 U



Table C-11 2019 B3 Metal, Pesticide, and VOC Soil Analytical Results May Creek Landfill 15753 SE Renton Issaquah Rd Renton, WA													
Group	Chemical Analysis	CAS Number	EPA RSL	EPA RML	WA MTCA Method A	WA MTCA Method B (Noncancer, Direct Contact)	WA MTCA Method B (Cancer, Direct Contact)	Date:	7/17/2019	7/17/2019	7/17/2019	7/17/2019	7/17/2019
								Sampling Depth (feet):	2 - 3	1 - 2	2 - 3	2 - 3	1 - 2
								EPA Sample Number:	19070148	19070149	19070150	19070152	19070151
								Location:	B31909SB23	B31910SB12	B31911SB23	Field Duplicate of B31911SB23	B31912SB12
								Removal Status:	Excavated	Unexcavated	Excavated	Excavated	Excavated
								Units	Result	Result	Result	Result	Result
VOCs	Methylene Chloride	75-09-2	57,000	1,000,000	20	480,000	500,000	ug/Kg	49 U	53 U	43 U	41 UJK	49 U
VOCs	m-Xylene & p-Xylene	179601-23-1	580,000	1,700,000	9,000	16,000,000	—	ug/Kg	12 U	13 U	11 U	10 UJK	12 U
VOCs	Naphthalene	91-20-3	3,800	380,000	5,000	1,600,000	—	ug/Kg	12 U	13 U	11 U	10 UJK	12 U
VOCs	n-Butylbenzene	104-51-8	3,900,000	12,000,000	—	4,000,000	—	ug/Kg	3.7 U	4.0 U	8.9	7.2 JK	3.6 U
VOCs	N-Propylbenzene	103-65-1	3,800,000	11,000,000	—	8,000,000	—	ug/Kg	6.2 U	6.6 U	5.4 U	5.1 UJK	6.1 U
VOCs	o-Xylene	95-47-6	650,000	1,900,000	9,000	16,000,000	—	ug/Kg	6.2 U	6.6 U	1.2 JQ	5.1 UJK	6.1 U
VOCs	sec-Butylbenzene	135-98-8	7,800,000	23,000,000	—	8,000,000	—	ug/Kg	3.7 U	4.0 U	1.4 JQ	1.2 JQ	3.6 U
VOCs	Styrene	100-42-5	6,000,000	18,000,000	—	16,000,000	—	ug/Kg	3.7 U	4.0 U	3.3 U	3.0 UJK	3.6 U
VOCs	t-Butylbenzene	98-06-6	7,800,000	23,000,000	—	8,000,000	—	ug/Kg	3.7 U	4.0 U	3.3 U	3.0 UJK	3.6 U
VOCs	Tetrachloroethene	127-18-4	24,000	240,000	50	480,000	480,000	ug/Kg	2.5 U	2.6 U	2.2 U	2.0 UJK	2.4 U
VOCs	Toluene	108-88-3	4,900,000	15,000,000	7,000	6,400,000	—	ug/Kg	12 U	13 U	11 U	10 UJK	12 U
VOCs	trans-1,2-Dichloroethene	156-60-5	1,600,000	4,700,000	—	1,600,000	—	ug/Kg	2.5 U	2.6 U	2.2 U	2.0 UJK	2.4 U
VOCs	trans-1,3-Dichloropropene	10061-02-6	—	—	—	—	—	ug/Kg	12 U	13 U	11 U	10 UJK	12 U
VOCs	Trichloroethene	79-01-6	940	12,000	30	40,000	12,000	ug/Kg	2.5 U	2.6 U	2.2 U	2.0 UJK	2.4 U
VOCs	Trichlorofluoromethane	75-69-4	23,000,000	70,000,000	—	24,000,000	—	ug/Kg	2.5 U	2.6 U	2.2 U	2.0 UJK	2.4 U
VOCs	Vinyl chloride	75-01-4	59	5,900	—	240,000	670	ug/Kg	2.5 U	2.6 U	2.2 U	2.0 UJK	2.4 U

Notes:

**1,180** = Yellow highlighting indicates result that exceeds listed screening levels.

**1,180** = Bold text indicates a detected result.

--- = Not Applicable

CAS = Chemical Abstracts Service

EPA RML = Environmental Protection Agency (EPA) Removal Management Levels (RML), 40 CFR Part 300, November 2019

EPA RSL = Environmental Protection Agency (EPA) Regional Screening Levels (RSL), 40 CFR Part 300, November 2019

J = The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

K = The bias of the sample is not known.

L = The sample result is biased low.

Metals = Target Analyte List Metals, EPA Method 6010C (ICP-AES) and 7471 (CVAA)

mg/Kg = milligrams per kilogram

Pesticides = Organochlorine Pesticides, EPA Method 8081B by GC/ECD

Q = Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.

U = The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.

ug/Kg = micrograms per kilogram

VOCs = Volatile Organic Compounds, EPA Method 8260C by GC/MS

WA MTCA Method A = Washington State (WA) Model Toxics Control Act (MTCA) Cleanup Regulation Method A (unrestricted land use) value from the Cleanup and Risk Calculations tables (CLARC), chapter 173-340 WAC, August 2015

WA MTCA Method B = Washington State (WA) Model Toxics Control Act (MTCA) Cleanup Regulation Method B (unrestricted land use) value from the Cleanup and Risk Calculations tables (CLARC), chapter 173-340 WAC, August 2015

<div> <div>Table C-12A</div> <div>2019 B3 Soil Samples for Waste Disposal Profiling Results</div> <div>May Creek Landfill</div> <div>15753 SE Renton Issaquah Rd</div> <div>Renton, WA</div> </div>										
Group	Chemical Analysis	CAS Number	EPA RSL	EPA RML	WA MTCA Method A	WA MTCA Method B (Noncancer, Direct Contact)	WA MTCA Method B (Cancer, Direct Contact)	Date:	7/16/2019	7/16/2019
								Sampling Depth (feet):	1 - 2	—
								EPA Sample Number:	19070146	19070147
								Location:	B31907SB12	B31908SP
								Removal Status:	Excavated	Excavated
								Units	Result	Result
Dx	Diesel	STL00163	—	—	2,000	—	—	mg/Kg	640	360 U
Dx	Motor Oil	STL00299	—	—	2,000	—	—	mg/Kg	1,100	890
Gx	Gasoline	STL00228	—	—	30	—	—	mg/Kg	360 JL	19 JL
Metals	Aluminum	7429-90-5	77,000	230,000	—	80,000	—	mg/Kg	5,300	9,100
Metals	Antimony	7440-36-0	31	94	—	32	—	mg/Kg	3.0	1.6 JQ
Metals	Arsenic	7440-38-2	0.68	68	20	24	0.67	mg/Kg	5.8	5.5
Metals	Barium	7440-39-3	15,000	46,000	—	16,000	—	mg/Kg	39	52
Metals	Beryllium	7440-41-7	160	470	—	160	—	mg/Kg	0.044 JQ	0.088 JQ
Metals	Cadmium	7440-43-9	71	210	2	80	—	mg/Kg	0.45 JQ	1.8
Metals	Calcium	7440-70-2	—	—	—	—	—	mg/Kg	5,500	10,000
Metals	Chromium	7440-47-3	—	—	2,000	120,000	—	mg/Kg	15	25
Metals	Cobalt	7440-48-4	23	70	—	—	—	mg/Kg	3.9	5.5
Metals	Copper	7440-50-8	3,100	9,400	—	3,200	—	mg/Kg	21	31
Metals	Iron	7439-89-6	55,000	160,000	—	56,000	—	mg/Kg	7,800	12,000
Metals	Lead	7439-92-1	400	400	250	—	—	mg/Kg	120	38
Metals	Magnesium	7439-95-4	—	—	—	—	—	mg/Kg	2,400	3,700
Metals	Manganese	7439-96-5	1,800	5,500	—	3,700	—	mg/Kg	160	260
Metals	Mercury	7439-97-6	11,000	33,000	2,000	—	—	ug/Kg	55	79
Metals	Nickel	7440-02-0	1,500	4,600	—	1,600	—	mg/Kg	13	22
Metals	Potassium	7440-09-7	—	—	—	—	—	mg/Kg	410	550
Metals	Selenium	7782-49-2	390	1,200	—	400	—	mg/Kg	4.4 U	4.6 U
Metals	Silver	7440-22-4	390	1,200	—	400	—	mg/Kg	2.2 U	2.3 U
Metals	Sodium	7440-23-5	—	—	—	—	—	mg/Kg	180	260
Metals	Thallium	7440-28-0	0.78	2.3	—	0.8	—	mg/Kg	4.4 U	4.6 U
Metals	Vanadium	7440-62-2	390	1,200	—	400	—	mg/Kg	19	27
Metals	Zinc	7440-66-6	23,000	70,000	—	24,000	—	mg/Kg	160	180
PCBs	PCB-1016	12674-11-2	4,100	12,000	—	5,600	14,000	ug/Kg	20 U	23 U
PCBs	PCB-1221	11104-28-2	200	20,000	—	—	—	ug/Kg	20 U	23 U
PCBs	PCB-1232	11141-16-5	170	17,000	—	—	—	ug/Kg	20 U	23 U
PCBs	PCB-1242	53469-21-9	230	23,000	—	—	—	ug/Kg	20 U	23 U
PCBs	PCB-1248	12672-29-6	230	23,000	—	1,600	—	ug/Kg	20 U	23 U
PCBs	PCB-1254	11097-69-1	240	3,500	—	—	500	ug/Kg	20 U	23 U
PCBs	PCB-1260	11096-82-5	240	24,000	—	—	500	ug/Kg	20 U	23 U
PCBs	Total PCB	1336-36-3	230	23,000	1,000	—	500	ug/Kg	—	—
Pesticides	4,4'-DDD	72-54-8	1,900	5,700	—	2,400	4,200	ug/kg	5.9 U	6.9 U
Pesticides	4,4'-DDE	72-55-9	2,000	70,000	—	24,000	2,900	ug/kg	2.9 JQ	6.9 U
Pesticides	4,4'-DDT	50-29-3	1,900	110,000	3,000	40,000	2,900	ug/kg	5.9 U	6.9 U
Pesticides	Aldrin	309-00-2	39	3,900	—	2,400	59	ug/kg	8.9 U	10 U
Pesticides	alpha-BHC	319-84-6	86	8,600	—	640,000	160	ug/kg	5.9 U	6.9 U
Pesticides	beta-BHC	319-85-7	300	30,000	—	—	560	ug/kg	15 U	17 U
Pesticides	cis-Chlordane	5103-71-9	—	—	—	—	—	ug/kg	2.5 JQ	6.9 U
Pesticides	delta-BHC	319-86-8	—	—	—	—	—	ug/kg	8.9 U	10 U
Pesticides	Dieldrin	60-57-1	34	3,400	—	4,000	63	ug/kg	7.6	3.3 JQ
Pesticides	Endosulfan I	959-98-8	—	—	—	—	—	ug/kg	5.9 U	6.9 U
Pesticides	Endosulfan II	33213-65-9	—	—	—	—	—	ug/kg	4.7 JQ	6.9 U
Pesticides	Endosulfan sulfate	1031-07-8	380,000	1,100,000	—	480,000	—	ug/kg	9.9 U	11 U
Pesticides	Endrin	72-20-8	19,000	57,000	—	24,000	—	ug/kg	5.9 U	6.9 U
Pesticides	Endrin aldehyde	7421-93-4	—	—	—	—	—	ug/kg	99 U	110 U
Pesticides	Endrin ketone	53494-70-5	—	—	—	—	—	ug/kg	9.9 U	11 U
Pesticides	gamma-BHC (Lindane)	58-89-9	570	57,000	10	24,000	910	ug/kg	5.9 U	6.9 U
Pesticides	Heptachlor	76-44-8	130	13,000	—	40,000	220	ug/kg	8.9 U	10 U
Pesticides	Heptachlor epoxide	1024-57-3	70	3,100	—	1,000	110	ug/kg	8.9 U	10 U
Pesticides	Methoxychlor	72-43-5	320,000	950,000	—	400,000	—	ug/kg	49 U	57 U
Pesticides	Toxaphene	8001-35-2	490	17,000	—	7,200	910	ug/kg	300 U	340 U
Pesticides	trans-Chlordane	5103-74-2	—	—	—	—	—	ug/kg	1.7 JQ	1.3 JQ
SVOCs	1,2,4-Trichlorobenzene	120-82-1	24,000	170,000	—	800,000	34,000	ug/Kg	300 U	0.32 U
SVOCs	1,2-Dichlorobenzene	95-50-1	1,800,000	5,400,000	—	7,200,000	—	ug/Kg	300 U	0.32 U
SVOCs	1,3-Dichlorobenzene	541-73-1	—	—	—	—	—	ug/Kg	300 U	0.32 U
SVOCs	1,4-Dichlorobenzene	106-46-7	2,600	260,000	—	5,600,000	190,000	ug/Kg	300 U	0.32 U
SVOCs	1-Methylnaphthalene	90-12-0	18,000	1,800,000	—	5,600,000	34,000	ug/kg	2,400	0.21
SVOCs	2,4,5-Trichlorophenol	95-95-4	6,300,000	19,000,000	—	8,000,000	—	ug/Kg	1,200 U	1.3 U
SVOCs	2,4,6-Trichlorophenol	88-06-2	49,000	190,000	—	80,000	91,000	ug/Kg	910 U	0.95 U
SVOCs	2,4-Dichlorophenol	120-83-2	190,000	570,000	—	240,000	—	ug/Kg	610 U	0.64 U
SVOCs	2,4-Dimethylphenol	105-67-9	1,300,000	3,800,000	—	1,600,000	—	ug/Kg	610 U	0.64 U
SVOCs	2,4-Dinitrophenol	51-28-5	130,000	380,000	—	160,000	—	ug/Kg	6,100 U	6.4 U
SVOCs	2,4-Dinitrotoluene	121-14-2	1,700	170,000	—	160,000	3,200	ug/Kg	1,200 U	1.3 U
SVOCs	2,6-Dinitrotoluene	606-20-2	360	36,000	—	24,000	670	ug/Kg	910 U	0.95 U

<div> <div>Table C-12A</div> <div>2019 B3 Soil Samples for Waste Disposal Profiling Results</div> <div>May Creek Landfill</div> <div>15753 SE Renton Issaquah Rd</div> <div>Renton, WA</div> </div>										
Group	Chemical Analysis	CAS Number	EPA RSL	EPA RML	WA MTCA Method A	WA MTCA Method B (Noncancer, Direct Contact)	WA MTCA Method B (Cancer, Direct Contact)	Date:	7/16/2019	7/16/2019
								Sampling Depth (feet):	1 - 2	—
								EPA Sample Number:	19070146	19070147
								Location:	B31907SB12	B31908SP
								Removal Status:	Excavated	Excavated
								Units	Result	Result
SVOCs	2-Chloronaphthalene	91-58-7	4,800,000	14,000,000	—	6,400,000	—	ug/Kg	150 U	0.16 U
SVOCs	2-Chlorophenol	95-57-8	390,000	1,200,000	—	400,000	—	ug/Kg	1,200 U	1.3 U
SVOCs	2-Methylnaphthalene	91-57-6	240,000	720,000	—	320,000	—	ug/Kg	<b>2,000</b>	<b>0.17 JQ</b>
SVOCs	2-Methylphenol	95-48-7	3,200,000	9,500,000	—	4,000,000	—	ug/Kg	910 U	0.95 U
SVOCs	2-Nitroaniline	88-74-4	630,000	1,900,000	—	800,000	—	ug/Kg	610 U	0.64 U
SVOCs	2-Nitrophenol	88-75-5	—	—	—	—	—	ug/Kg	1,200 U	1.3 U
SVOCs	3 & 4 Methylphenol	15831-10-4	—	—	—	—	—	ug/kg	1,200 U	1.3 U
SVOCs	3,3'-Dichlorobenzidine	91-94-1	1,200	120,000	—	—	2,200	ug/Kg	2,400 U	2.5 U
SVOCs	3-Nitroaniline	99-09-2	—	—	—	—	—	ug/Kg	1,200 U	1.3 U
SVOCs	4,6-Dinitro-2-methylphenol	534-52-1	5,100	15,000	—	6,400	—	ug/Kg	6,100 U	6.4 U
SVOCs	4-Bromophenyl phenyl ether	101-55-3	—	—	—	—	—	ug/Kg	1,200 U	1.3 U
SVOCs	4-Chloro-3-methylphenol	59-50-7	6,300,000	19,000,000	—	8,000,000	—	ug/Kg	910 U	0.95 U
SVOCs	4-Chloroaniline	106-47-8	2,700	270,000	—	320,000	5,000	ug/Kg	9,100 U	9.5 U
SVOCs	4-Chlorophenyl phenyl ether	7005-72-3	—	—	—	—	—	ug/Kg	1,200 U	1.3 U
SVOCs	4-Nitroaniline	100-01-6	27,000	760,000	—	—	—	ug/Kg	910 U	0.95 U
SVOCs	4-Nitrophenol	100-02-7	—	—	—	—	—	ug/Kg	9,100 U	9.5 U
SVOCs	Acenaphthene	83-32-9	3,600,000	11,000,000	—	4,800,000	—	ug/Kg	<b>50 JQ</b>	0.16 U
SVOCs	Acenaphthylene	208-96-8	—	—	—	—	—	ug/Kg	150 U	0.16 U
SVOCs	Anthracene	120-12-7	18,000,000	54,000,000	—	24,000,000	—	ug/Kg	<b>52 JQ</b>	<b>0.037 JQ</b>
SVOCs	Benzo[a]anthracene	56-55-3	1,100	110,000	—	—	—	ug/Kg	<b>130 JQ</b>	<b>0.14 JQ</b>
SVOCs	Benzo[a]pyrene	50-32-8	110	11,000	100	24,000	190	ug/Kg	<b>85 JQ</b>	<b>0.18 JQ</b>
SVOCs	Benzo[b]fluoranthene	205-99-2	1,100	110,000	—	—	—	ug/Kg	<b>110 JQ</b>	<b>0.31</b>
SVOCs	Benzo[g,h,i]perylene	191-24-2	—	—	—	—	—	ug/Kg	<b>130 JQ</b>	<b>0.13 JQ</b>
SVOCs	Benzo[k]fluoranthene	207-08-9	11,000	1,100,000	—	—	—	ug/Kg	370 U	0.38 U
SVOCs	Benzoic acid	65-85-0	250,000,000	760,000,000	—	320,000,000	—	ug/Kg	12,000 U	13 U
SVOCs	Benzyl alcohol	100-51-6	6,300,000	19,000,000	—	8,000,000	—	ug/Kg	3,000 U	3.2 U
SVOCs	Bis(2-chloroethoxy)methane	111-91-1	190,000	570,000	—	—	—	ug/Kg	1,200 U	1.3 U
SVOCs	Bis(2-chloroethyl)ether	111-44-4	230	23,000	—	—	910	ug/Kg	610 U	<b>0.18 JQ</b>
SVOCs	Bis(2-ethylhexyl) phthalate	117-81-7	39,000	3,800,000	—	1,600,000	71,000	ug/Kg	<b>800 JQ</b>	<b>0.75 JQ</b>
SVOCs	bis(chloroisopropyl) ether	108-60-1	3,100,000	9,400,000	—	3,200,000	14,000	ug/Kg	1,200 U	1.3 U
SVOCs	Butyl benzyl phthalate	85-68-7	290,000	29,000,000	—	16,000,000	530,000	ug/Kg	1,200 U	1.3 U
SVOCs	Carbazole	86-74-8	—	—	—	—	—	ug/Kg	910 U	0.95 U
SVOCs	Chrysene	218-01-9	110,000	11,000,000	—	—	—	ug/Kg	<b>150 JQ</b>	<b>0.20 JQ</b>
SVOCs	Dibenz(a,h)anthracene	53-70-3	110	11,000	—	—	—	ug/Kg	300 U	0.32 U
SVOCs	Dibenzofuran	132-64-9	73,000	220,000	—	80,000	—	ug/Kg	910 U	0.95 U
SVOCs	Diethyl phthalate	84-66-2	51,000,000	150,000,000	—	64,000,000	—	ug/Kg	9,100 U	9.5 U
SVOCs	Dimethyl phthalate	131-11-3	—	—	—	—	—	ug/Kg	910 U	0.95 U
SVOCs	Di-n-butyl phthalate	84-74-2	6,300,000	19,000,000	—	8,000,000	—	ug/Kg	3,000 U	3.2 U
SVOCs	Di-n-octyl phthalate	117-84-0	630,000	1,900,000	—	800,000	—	ug/Kg	910 U	0.95 U
SVOCs	Fluoranthene	206-44-0	2,400,000	7,200,000	—	3,200,000	—	ug/Kg	<b>240</b>	<b>0.37</b>
SVOCs	Fluorene	86-73-7	2,400,000	7,200,000	—	3,200,000	—	ug/Kg	150 U	0.16 U
SVOCs	Hexachlorobenzene	118-74-1	210	21,000	—	64,000	630	ug/Kg	300 U	0.32 U
SVOCs	Hexachlorobutadiene	87-68-3	1,200	120,000	—	80,000	13,000	ug/Kg	300 U	0.32 U
SVOCs	Hexachlorocyclopentadiene	77-47-4	1,800	5,300	—	480,000	—	ug/Kg	610 U	0.64 U
SVOCs	Hexachloroethane	67-72-1	1,800	130,000	—	56,000	25,000	ug/Kg	910 U	0.95 U
SVOCs	Indeno[1,2,3-cd]pyrene	193-39-5	1,100	110,000	—	—	—	ug/Kg	<b>120 JQ</b>	<b>0.19 JQ</b>
SVOCs	Isophorone	78-59-1	570,000	38,000,000	—	16,000,000	1,100,000	ug/Kg	910 U	0.95 U
SVOCs	Naphthalene	91-20-3	3,800	380,000	5,000	1,600,000	—	ug/Kg	<b>150</b>	<b>0.048 JQ</b>
SVOCs	Nitrobenzene	98-95-3	5,100	380,000	—	160,000	—	ug/Kg	1,200 U	1.3 U
SVOCs	N-Nitrosodi-n-propylamine	621-64-7	78	7,800	—	—	140	ug/Kg	<b>R</b>	<b>R</b>
SVOCs	N-Nitrosodiphenylamine	86-30-6	110,000	11,000,000	—	—	200,000	ug/Kg	370 U	0.38 U
SVOCs	Pentachlorophenol	87-86-5	1,000	100,000	—	400,000	2,500	ug/Kg	2,700 U	2.9 U
SVOCs	Phenanthrene	85-01-8	—	—	—	—	—	ug/Kg	<b>190 JQ</b>	<b>0.12 JQ</b>
SVOCs	Phenol	108-95-2	19,000,000	57,000,000	—	24,000,000	—	ug/Kg	910 U	0.95 U
SVOCs	Pyrene	129-00-0	1,800,000	5,400,000	—	2,400,000	—	ug/Kg	<b>390</b>	<b>0.37 JQ</b>
VOCs	1,1,1,2-Tetrachloroethane	630-20-6	2,000	200,000	—	2,400,000	38,000	ug/Kg	4.6 UJK	3.4 U
VOCs	1,1,1-Trichloroethane	71-55-6	8,100,000	24,000,000	2,000	160,000,000	—	ug/Kg	3.0 UJK	2.3 U
VOCs	1,1,2,2-Tetrachloroethane	79-34-5	600	60,000	—	1,600,000	5,000	ug/Kg	6.1 UJK	4.6 U
VOCs	1,1,2-Trichloroethane	79-00-5	1,100	4,500	—	320,000	18,000	ug/Kg	3.0 UJK	2.3 U
VOCs	1,1-Dichloroethane	75-34-3	3,600	360,000	—	16,000,000	180,000	ug/Kg	1.5 UJK	1.1 U
VOCs	1,1-Dichloroethene	75-35-4	230,000	680,000	—	4,000,000	—	ug/Kg	7.6 UJK	5.7 U
VOCs	1,1-Dichloropropene	563-58-6	—	—	—	—	—	ug/Kg	3.0 UJK	2.3 U
VOCs	1,2,3-Trichlorobenzene	87-61-6	63,000	190,000	—	—	—	ug/Kg	4.6 UJK	3.4 U
VOCs	1,2,3-Trichloropropane	96-18-4	5.1	510	—	320,000	33	ug/Kg	7.6 UJK	5.7 U
VOCs	1,2,4-Trichlorobenzene	120-82-1	24,000	170,000	—	800,000	34,000	ug/Kg	3.0 UJK	2.3 U
VOCs	1,2,4-Trimethylbenzene	95-63-6	300,000	910,000	—	800,000	—	ug/Kg	<b>38 JK</b>	5.7 U

Table C-12A 2019 B3 Soil Samples for Waste Disposal Profiling Results May Creek Landfill 15753 SE Renton Issaquah Rd Renton, WA										
Group	Chemical Analysis	CAS Number	EPA RSL	EPA RML	WA MTCA Method A	WA MTCA Method B (Noncancer, Direct Contact)	WA MTCA Method B (Cancer, Direct Contact)	Date:	7/16/2019	7/16/2019
								Sampling Depth (feet):	1 - 2	---
								EPA Sample Number:	19070146	19070147
								Location:	B31907SB12	B31908SP
								Removal Status:	Excavated	Excavated
								Units	Result	Result
VOCs	1,2-Dibromo-3-Chloropropane	96-12-8	5.3	530	---	16,000	1,300	ug/Kg	15 UJK	11 U
VOCs	1,2-Dibromoethane	106-93-4	36	3,600	5	720,000	500	ug/Kg	1.5 UJK	1.1 U
VOCs	1,2-Dichlorobenzene	95-50-1	1,800,000	5,400,000	---	7,200,000	---	ug/Kg	15 UJK	11 U
VOCs	1,2-Dichloroethane	107-06-2	460	46,000	---	480,000	11,000	ug/Kg	1.5 UJK	1.1 U
VOCs	1,2-Dichloropropane	78-87-5	2,500	47,000	---	3,200,000	27,000	ug/Kg	3.0 UJK	2.3 U
VOCs	1,3,5-Trimethylbenzene	108-67-8	270,000	810,000	---	800,000	---	ug/Kg	97 JK	5.7 U
VOCs	1,3-Dichlorobenzene	541-73-1	---	---	---	---	---	ug/Kg	7.6 UJK	5.7 U
VOCs	1,3-Dichloropropane	142-28-9	1,600,000	4,700,000	---	---	---	ug/Kg	3.0 UJK	2.3 U
VOCs	1,4-Dichlorobenzene	106-46-7	2,600	260,000	---	5,600,000	190,000	ug/Kg	7.6 UJK	5.7 U
VOCs	2,2-Dichloropropane	594-20-7	---	---	---	---	---	ug/Kg	7.6 UJK	5.7 U
VOCs	2-Chlorotoluene	95-49-8	1,600,000	4,700,000	---	1,600,000	---	ug/Kg	7.6 UJK	5.7 U
VOCs	4-Chlorotoluene	106-43-4	1,600,000	4,700,000	---	---	---	ug/Kg	7.6 UJK	5.7 U
VOCs	4-Isopropyltoluene	99-87-6	---	---	---	---	---	ug/Kg	27 JK	2.3 U
VOCs	Benzene	71-43-2	1,200	120,000	30	320,000	18,000	ug/Kg	0.62 JQ	2.3 U
VOCs	Bromobenzene	108-86-1	290,000	860,000	---	---	640,000	ug/Kg	15 UJK	11 U
VOCs	Bromochloromethane	74-97-5	150,000	450,000	---	---	---	ug/Kg	3.0 UJK	2.3 U
VOCs	Bromodichloromethane	75-27-4	290	29,000	---	1,600,000	16,000	ug/Kg	1.5 UJK	1.1 U
VOCs	Bromoform	75-25-2	19,000	1,900,000	---	1,600,000	130,000	ug/Kg	7.6 UJK	5.7 U
VOCs	Bromomethane	74-83-9	6,800	21,000	---	110,000	---	ug/Kg	1.5 UJK	1.1 U
VOCs	Carbon tetrachloride	56-23-5	650	65,000	---	320,000	14,000	ug/Kg	3.0 UJK	2.3 U
VOCs	Chlorobenzene	108-90-7	280,000	830,000	---	1,600,000	---	ug/Kg	3.0 UJK	2.3 U
VOCs	Chloroethane	75-00-3	14,000,000	41,000,000	---	---	---	ug/Kg	15 UJK	11 U
VOCs	Chloroform	67-66-3	320	32,000	---	800,000	32,000	ug/Kg	3.0 UJK	2.3 U
VOCs	Chloromethane	74-87-3	110,000	330,000	---	---	---	ug/Kg	7.6 UJK	5.7 U
VOCs	cis-1,2-Dichloroethene	156-59-2	160,000	470,000	---	160,000	---	ug/Kg	4.6 UJK	3.4 U
VOCs	cis-1,3-Dichloropropene	10061-01-5	---	---	---	---	---	ug/Kg	1.5 UJK	1.1 U
VOCs	Dibromochloromethane	124-48-1	8,300	830,000	---	1,600,000	12,000	ug/Kg	2.3 UJK	1.7 U
VOCs	Dibromomethane	74-95-3	24,000	71,000	---	800,000	---	ug/Kg	1.5 UJK	1.1 U
VOCs	Dichlorodifluoromethane	75-71-8	87,000	260,000	---	16,000,000	---	ug/Kg	3.0 UJK	2.3 U
VOCs	Ethylbenzene	100-41-4	5,800	580,000	6,000	8,000,000	---	ug/Kg	18 JK	0.80 JQ
VOCs	Hexachlorobutadiene	87-68-3	1,200	120,000	---	80,000	13,000	ug/Kg	4.6 UJK	3.4 UJL
VOCs	Isopropylbenzene	98-82-8	1,900,000	5,800,000	---	8,000,000	---	ug/Kg	18 JK	2.3 U
VOCs	Methyl tert-butyl ether	1634-04-4	47,000	4,700,000	100	---	560,000	ug/Kg	3.0 UJK	2.3 U
VOCs	Methylene Chloride	75-09-2	57,000	1,000,000	20	480,000	500,000	ug/Kg	61 UJK	46 U
VOCs	m-Xylene & p-Xylene	179601-23-1	580,000	1,700,000	9,000	16,000,000	---	ug/Kg	38 JK	11 U
VOCs	Naphthalene	91-20-3	3,800	380,000	5,000	1,600,000	---	ug/Kg	8.7 JQ	11 U
VOCs	n-Butylbenzene	104-51-8	3,900,000	12,000,000	---	4,000,000	---	ug/Kg	100 JK	1.2 JQ
VOCs	N-Propylbenzene	103-65-1	3,800,000	11,000,000	---	8,000,000	---	ug/Kg	23 JK	5.7 U
VOCs	o-Xylene	95-47-6	650,000	1,900,000	9,000	16,000,000	---	ug/Kg	4.0 JQ	5.7 U
VOCs	sec-Butylbenzene	135-98-8	7,800,000	23,000,000	---	8,000,000	---	ug/Kg	22 JK	3.4 U
VOCs	Styrene	100-42-5	6,000,000	18,000,000	---	16,000,000	---	ug/Kg	4.6 UJK	3.4 U
VOCs	t-Butylbenzene	98-06-6	7,800,000	23,000,000	---	8,000,000	---	ug/Kg	4.6 UJK	3.4 U
VOCs	Tetrachloroethene	127-18-4	24,000	240,000	50	480,000	480,000	ug/Kg	3.0 UJK	2.3 U
VOCs	Toluene	108-88-3	4,900,000	15,000,000	7,000	6,400,000	---	ug/Kg	15 UJK	11 U
VOCs	trans-1,2-Dichloroethene	156-60-5	1,600,000	4,700,000	---	1,600,000	---	ug/Kg	3.0 UJK	2.3 U
VOCs	trans-1,3-Dichloropropene	10061-02-6	---	---	---	---	---	ug/Kg	15 UJK	11 U
VOCs	Trichloroethene	79-01-6	940	12,000	30	40,000	12,000	ug/Kg	3.0 UJK	2.3 U
VOCs	Trichlorofluoromethane	75-69-4	23,000,000	70,000,000	---	24,000,000	---	ug/Kg	3.0 UJK	2.3 U
VOCs	Vinyl chloride	75-01-4	59	5,900	---	240,000	670	ug/Kg	3.0 UJK	2.3 U



Notes:

**1,180** = Yellow highlighting indicates results that exceed listed screening levels.

**1,180** = Bold text indicates a detected result.

— = Not Applicable

CAS = Chemical Abstracts Service

Dx = Northwest Total Petroleum Hydrocarbons - Extended Diesel Range (Semi-volatile Petroleum Products)

EPA RML = Environmental Protection Agency (EPA) Removal Management Levels (RML), 40 CFR Part 300, November 2019

EPA RSL = Environmental Protection Agency (EPA) Regional Screening Levels (RSL), 40 CFR Part 300, November 2019

Gx = Northwest Total Petroleum Hydrocarbons - Extended Gasoline Range (Volatile Petroleum Products)

J = The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

K = The bias of the sample is not known.

L = The sample result is biased low.

mg/Kg = milligrams per kilogram

Pesticides = Organochlorine Pesticides, EPA Method 8081B by GC/ECD

PCBs = Polychlorinated Biphenyls (PCBs), EPA Method 8082A by GC/ECD

Q = Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.

R = The data is rejected and unusable. The analyte may or may not be present in the sample.

SVOCs = Semi-Volatile Organic Compounds, EPA Method 8270D by GC/MS

Metals = Target Analyte List Metals, EPA Method 6010C (ICP-AES) and 7471 (CVAA)

U = The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.

ug/Kg = micrograms per kilogram

VOCs = Volatile Organic Compounds, EPA Method 8260C by GC/MS

WA MTCA = Washington State (WA) Model Toxics Control Act (MTCA) Cleanup Regulation Method A (unrestricted land use) value from the Cleanup and Risk Calculations tables (CLARC), Method A chapter 173-340 WAC, August 2015

WA MTCA = Washington State (WA) Model Toxics Control Act (MTCA) Cleanup Regulation Method B (unrestricted land use) value from the Cleanup and Risk Calculations tables (CLARC), Method B chapter 173-340 WAC, August 2015

Table C-12B 2019 B3 Soil Samples for Waste Disposal Profiling TCLP and Flashpoint Results May Creek Landfill 15753 SE Renton Issaquah Rd Renton, WA							
Group	Chemical Analysis	CAS Number	EPA TCLP	EPA RCRA	Date:	7/16/2019	7/16/2019
					Sampling Depth (feet):	1 - 2	---
					EPA Sample Number:	19070146	19070147
					Location:	B31907SB12	B31908SP
					Removal Status:	Excavated	Excavated
					Units	Result	Result
Metals	Arsenic	7440-38-2	5	---	mg/L	0.034 JQ	0.0084 JQ
Metals	Barium	7440-39-3	100	---	mg/L	0.40	0.40
Metals	Cadmium	7440-43-9	1	---	mg/L	0.0049 JQ	0.019 JQ
Metals	Chromium	7440-47-3	5	---	mg/L	0.0038 JQ	0.025 U
Metals	Lead	7439-92-1	5	---	mg/L	0.051	0.030 U
Metals	Mercury	7439-97-6	0.2	---	mg/L	0.0030 U	0.0030 U
Metals	Selenium	7782-49-2	1	---	mg/L	0.10 U	0.10 U
Metals	Silver	7440-22-4	5	---	mg/L	0.050 U	0.050 U
SVOCs	1,4-Dichlorobenzene	106-46-7	7.5	---	mg/L	0.0020 U	0.0020 U
SVOCs	2,4,5-Trichlorophenol	95-95-4	400	---	mg/L	0.0020 U	0.0020 U
SVOCs	2,4,6-Trichlorophenol	88-06-2	2	---	mg/L	0.0030 U	0.0030 U
SVOCs	2,4-Dinitrotoluene	121-14-2	0.13	---	mg/L	0.0050 U	0.0050 U
SVOCs	2-Methylphenol	95-48-7	200	---	mg/L	0.0030 U	0.0030 U
SVOCs	3 & 4 Methylphenol	15831-10-4	---	---	mg/L	0.00022 JQ	0.00019 JQ
SVOCs	Hexachlorobenzene	118-74-1	0.13	---	mg/L	0.0030 U	0.0030 U
SVOCs	Hexachlorobutadiene	87-68-3	0.5	---	mg/L	0.0050 U	0.0050 U
SVOCs	Hexachloroethane	67-72-1	3	---	mg/L	0.0050 U	0.0050 U
SVOCs	Nitrobenzene	98-95-3	2	---	mg/L	0.0050 U	0.0050 U
SVOCs	Pentachlorophenol	87-86-5	100	---	mg/L	0.050 U	0.050 U
SVOCs	Pyridine	110-86-1	5	---	mg/L	0.075 UJ	0.075 UJ
VOCs	1,1-Dichloroethene	75-35-4	0.7	---	mg/L	0.40 U	0.40 U
VOCs	1,2-Dichloroethane	107-06-2	0.5	---	mg/L	0.20 U	0.20 U
VOCs	2-Butanone	78-93-3	200	---	mg/L	2.0 U	2.0 U
VOCs	Benzene	71-43-2	0.5	---	mg/L	0.30 U	0.30 U
VOCs	Carbon tetrachloride	56-23-5	0.5	---	mg/L	0.30 U	0.30 U
VOCs	Chlorobenzene	108-90-7	100	---	mg/L	0.20 U	0.20 U
VOCs	Chloroform	67-66-3	6	---	mg/L	0.50 U	0.50 U
VOCs	Tetrachloroethene	127-18-4	0.7	---	mg/L	0.30 U	0.30 U
VOCs	Trichloroethene	79-01-6	0.5	---	mg/L	0.30 U	0.30 U
VOCs	Vinyl chloride	75-01-4	0.2	---	mg/L	0.10 U	0.10 U
Ignitability	Ignitability	STL00250	---	< 68	Degrees F	> 211	> 211

Notes:

1,180 = Bold text indicates a detected result

--- = Not Applicable

CAS = Chemical Abstracts Service

Degrees F = Degrees fahrenheit

J = The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

mg/L = milligrams per Liter

Q = Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.

RCRA = Resource Conservation and Recovery Act

SVOCs = Semi-Volatile Organic Compounds, EPA Method 8270D by GC/MS

Metals = EPA Method 6010C (ICP-AES) and 7471 (CVAA)

TCLP = Toxicity Characteristic Leaching Procedure

U = The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.

VOCs = Volatile Organic Compounds, EPA Method 8260C by GC/MS

<p>Table C-13</p> <p>2019 Field Analytical Results</p> <p>May Creek Landfill</p> <p>15753 SE Renton Issaquah Rd</p> <p>Renton, WA</p>																		
Group	Chemical Analysis	CAS Number	WA MTCA Method A	Date:	7/10/2019	7/10/2019	7/10/2019	7/10/2019	7/10/2019	7/10/2019	7/10/2019	7/10/2019	7/10/2019	7/10/2019	7/10/2019	7/11/2019	7/11/2019	7/11/2019
				Sampling Depth (feet):	0 - 0.5	0.5 - 1	0.5 - 1	0.5 - 1	0.5 - 1	1 - 1.5	1 - 1.5	1 - 1.5	1 - 1.5	1 - 1.5	0.5 - 1	0.5 - 1	0.5 - 1	0.5 - 1
				EPA Sample Number:	19070101	19070102	19070103	19070104	19070105	19070106	19070107	19070108	19070109	19070110	19070112	19070113	19070114	19070115
				Location:	B11901SS01	B11902SB01	B11903SB01	B11904SB01	B11905SB01	B11906SB01	L21901SB12	L21902SB12	L21903SB12	L21904SB12	W21906SB01	W21907SB01	W21908SB01	W21909SB01
				Removal Status:	Excavated	Excavated	Excavated	Unexcavated	Excavated	Excavated	Unexcavated	Excavated	Excavated	Excavated	Excavated	Excavated	Excavated	Excavated
				Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Dx	Diesel	STL00163	2,000	mg/Kg	31,000	3,200	1,000 JQ	550 JQ	540 JQ	750 JQ	380 JQ	1,100 JQ	370 U	3,900	3,500	290 U	380 U	1,200 JQ
Dx	Motor Oil	STL00299	2,000	mg/Kg	44,000	12,000	6,300	1,700 JQ	2,000	2,000	2,600	32,000	8,800	3,900 JQ	3,000	920 JQ	910 JQ	3,000 JQ

Group	Chemical Analysis	CAS Number	WA MTCA Method A	Date:	7/11/2019	7/11/2019	7/11/2019	7/11/2019	7/11/2019	7/11/2019	7/11/2019	7/11/2019	7/11/2019	7/11/2019	7/12/2019	7/12/2019	7/12/2019	7/12/2019
				Sampling Depth (feet):	0.5 - 1	0.5 - 1	0.5 - 1	0.5 - 1	0.5 - 1	0.5 - 1	0.5 - 1	0.5 - 1	0.5 - 1	0.5 - 1	0 - 1	2 - 3	0 - 1	1 - 2
				EPA Sample Number:	19070117	19070118	19070119	19070120	19070121	19070122	19070123	19070124	19070125	19070126	19070127	19070128	19070129	19070130
				Location:	W11901SB01	W11902SB01	W11903SB01	W11904SB01	W11905SB01	W11906SB01	W11907SB01	W11908SB01	B31901SB01	B31901SB23	B31902SB01	B31902SB12	B31903SB01	L21905SB23
				Removal Status:	Unexcavated	Unexcavated	Unexcavated	Unexcavated	Unexcavated	Unexcavated	Unexcavated	Unexcavated	Unexcavated	Excavated	Excavated	Excavated	Excavated	Excavated
				Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Dx	Diesel	STL00163	2,000	mg/Kg	100 U	180 U	120 U	72 U	82 U	81 U	78 U	290 JQ	95 U	230 U	170 U	2,000	28,000	1,400 JQ
Dx	Motor Oil	STL00299	2,000	mg/Kg	930 JQ	720 JQ	490 JQ	310 U	330 U	270 U	330 U	550 JQ	890 JQ	1,200 JQ	1,200 JQ	1,200 JQ	3,000 JQ	3,100

Group	Chemical Analysis	CAS Number	WA MTCA Method A	Date:	7/12/2019	7/12/2019	7/12/2019	7/12/2019	7/12/2019	7/12/2019	7/12/2019	7/13/2019	7/13/2019	7/13/2019	7/15/2019	7/15/2019	7/15/2019	7/15/2019
				Sampling Depth (feet):	2 - 3	2 - 3	1 - 2	1 - 2	2 - 3	1 - 2	2 - 3	2 - 3	2 - 3	2 - 3	1 - 2	1 - 2	1 - 2	1 - 2
				EPA Sample Number:	19070132	19070133	19070134	19070135	19070136	19070137	19070138	19070139	19070140	19070141	19070142	19070143	19070144	19070145
				Location:	L21907SB23	Field Duplicate of L21907SB23	B11907SB12	B11908SB12	B11909SB23	B11910SB12	B31904SB23	B31905SB23	B31906SB23	W21911SB12	W21912SB12	W21913SB12	W21914SB12	W21915SB12
				Removal Status:	Excavated	Excavated	Unexcavated	Unexcavated	Unexcavated	Unexcavated	Unexcavated	Unexcavated	Excavated	Unexcavated	Unexcavated	Unexcavated	Unexcavated	Unexcavated
				Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Dx	Diesel	STL00163	2,000	mg/Kg	110 U	93 U	86 U	250 U	260 U	140 U	160 U	1,400	1,100 JQ	140 U	150 U	240 U	210 U	490 JQ
Dx	Motor Oil	STL00299	2,000	mg/Kg	6,400	540 U	350 U	1,100 JQ	1,300	650 JQ	3,700	2,300	3,700	460 U	520 U	360 U	380 U	570 JQ

- Notes:
- 1,180

= Yellow highlighting indicates result that exceeds listed screening levels.
- 1,180

= Bold text indicates a detected result.
- = Not Applicable
- CAS

= Chemical Abstracts Service
- Dx

= Northwest Total Petroleum Hydrocarbons - Extended Diesel Range (Semi-volatile Petroleum Products)
- J

= The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
- mg/Kg

= milligrams per kilogram
- Q

= Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.
- U

= The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.

Table C-14  
2019 Borehole Soil Analytical Results  
May Creek Landfill  
15753 SE Renton Issaquah Rd  
Renton, WA

Group	Chemical Analysis	CAS Number	EPA RSL	EPA RML	WA MTCA Method A	WA MTCA Method B (Noncancer, Direct Contact)	WA MTCA Method B (Cancer, Direct Contact)	Date:	7/9/2019	7/9/2019	7/10/2019	7/10/2019	7/10/2019	7/10/2019
								Sampling Depth (feet):	5 - 7	9.5 - 12	10 - 12	15 - 17	5 - 7	10 - 12
								EPA Sample Number:	19070201	19070202	19070205	19070206	19070203	19070204
								Location:	BHASB05-07	BHASB9.5-12	BHBSB10-12	BHBSB15-17	BHCSB05-07	BHCSB10-12
								Units	Result	Result	Result	Result	Result	Result
Dx	Diesel	STL00163	---	---	2,000	---	---	mg/Kg	50 U	130 U	49 U	52 U	43 JQ	280 JQ
Dx	Motor Oil	STL00299	---	---	2,000	---	---	mg/Kg	50 U	130 U	18 JQ	52 U	340	4,800
Gx	Gasoline	STL00228	---	---	30	---	---	mg/Kg	4.7 UJK	18 UJK	5.4 UJK	5.1 UJK	16 JK	4.8 UJL
Metals	Aluminum	7429-90-5	77,000	230,000	---	80,000	---	mg/Kg	9,800 JL	26,000 JL	18,000	8,500	30,000	11,000
Metals	Antimony	7440-36-0	31	94	---	32	---	mg/Kg	0.27 JQ	0.92 JQ	0.59 JQ	2.1 U	0.59 JQ	0.82 JQ
Metals	Arsenic	7440-38-2	0.68	68	20	24	0.67	mg/Kg	2.2 U	9.0	5.4	37	8.0	4.6
Metals	Barium	7440-39-3	15,000	46,000	---	16,000	---	mg/Kg	38 JK	110 JK	57	35	200	55
Metals	Beryllium	7440-41-7	160	470	---	160	---	mg/Kg	0.13 JQ	1.6 U	0.29 JQ	0.68 U	0.51 JQ	0.18 JQ
Metals	Cadmium	7440-43-9	71	210	2	80	---	mg/Kg	0.74 U	0.38 JQ	0.74 U	0.68 U	1.4 U	0.72 U
Metals	Calcium	7440-70-2	---	---	---	---	---	mg/Kg	2,900 JK	7,700 JK	2,800	3,600	4,500	5,700
Metals	Chromium	7440-47-3	---	---	2,000	120,000	---	mg/Kg	23 JH	60 JH	22	20	48	22
Metals	Cobalt	7440-48-4	23	70	---	---	---	mg/Kg	4.5	21	7.4	6.5	13	7.3
Metals	Copper	7440-50-8	3,100	9,400	---	3,200	---	mg/Kg	12	66	18	15	20	24
Metals	Iron	7439-89-6	55,000	160,000	---	56,000	---	mg/Kg	15,000 JL	37,000 JL	18,000	14,000	28,000	16,000
Metals	Lead	7439-92-1	400	400	250	---	---	mg/Kg	1.6	4.9	3.3	1.6	12	22
Metals	Magnesium	7439-95-4	---	---	---	---	---	mg/Kg	2,800 JK	10,000 JK	3,500	3,200	6,700	4,900
Metals	Manganese	7439-96-5	1,800	5,500	---	3,700	---	mg/Kg	180 JK	900 JK	270	240	630	250
Metals	Mercury	7439-97-6	11,000	33,000	2,000	---	---	ug/Kg	16 JQ	17 JQ	41	14 JQ	110	130
Metals	Nickel	7440-02-0	1,500	4,600	---	1,600	---	mg/Kg	15	60	20	19	34	23
Metals	Potassium	7440-09-7	---	---	---	---	---	mg/Kg	---	---	280	330	610	830
Metals	Selenium	7782-49-2	390	1,200	---	400	---	mg/Kg	3.7 U	8.2 U	3.7 U	0.31 JQ	7.1 U	3.6 U
Metals	Silver	7440-22-4	390	1,200	---	400	---	mg/Kg	1.8 U	4.1 U	1.9 U	1.7 U	3.5 U	1.8 U
Metals	Sodium	7440-23-5	---	---	---	---	---	mg/Kg	160	530	210	300	200	260
Metals	Thallium	7440-28-0	0.78	2.3	---	0.8	---	mg/Kg	3.7 U	8.2 U	3.7 U	3.4 U	7.1 U	3.6 U
Metals	Vanadium	7440-62-2	390	1,200	---	400	---	mg/Kg	29 JL	75 JL	45	33	79	42
Metals	Zinc	7440-66-6	23,000	70,000	---	24,000	---	mg/Kg	21	68	25	25	58	69
PCBs	PCB-1016	12674-11-2	4,100	12,000	---	5,600	14,000	ug/Kg	18 U	37 U	24 U	22 U	42 U	20 U
PCBs	PCB-1221	11104-28-2	200	20,000	---	---	---	ug/Kg	18 U	37 U	24 U	22 U	42 U	20 U
PCBs	PCB-1232	11141-16-5	170	17,000	---	---	---	ug/Kg	18 U	37 U	24 U	22 U	42 U	20 U
PCBs	PCB-1242	53469-21-9	230	23,000	---	---	---	ug/Kg	18 U	37 U	24 U	22 U	42 U	20 U
PCBs	PCB-1248	12672-29-6	230	23,000	---	1,600	---	ug/Kg	18 U	37 U	24 U	22 U	42 U	20 U
PCBs	PCB-1254	11097-69-1	240	3,500	---	---	500	ug/Kg	120 JK	37 U	24 U	22 U	42 U	20 U
PCBs	PCB-1260	11096-82-5	240	24,000	---	---	500	ug/Kg	18 U	37 U	24 U	22 U	42 U	20 U
Total PCB	Total PCB	1336-36-3	230	23,000	1,000	---	500	ug/Kg	120 JK	---	---	---	---	---
Pesticides	4,4'-DDD	72-54-8	1,900	5,700	---	2,400	4,200	ug/kg	1.8 U	3.7 U	2.4 U	2.2 U	3.5 JQ	9.9
Pesticides	4,4'-DDE	72-55-9	2,000	70,000	---	24,000	2,900	ug/kg	1.8 U	3.7 U	2.4 U	2.2 U	1.2 JQ	6.9 JL
Pesticides	4,4'-DDT	50-29-3	1,900	110,000	3,000	40,000	2,900	ug/kg	1.8 U	3.7 U	2.4 U	2.2 U	4.2 U	4.8 JQ
Pesticides	Aldrin	309-00-2	39	3,900	---	2,400	59	ug/kg	2.7 U	5.6 U	3.6 U	3.3 U	6.4 U	8.8 U
Pesticides	alpha-BHC	319-84-6	86	8,600	---	640,000	160	ug/kg	1.8 U	3.7 U	2.4 U	2.2 U	4.2 U	5.9 U



Table C-14  
2019 Borehole Soil Analytical Results  
May Creek Landfill  
15753 SE Renton Issaquah Rd  
Renton, WA

Group	Chemical Analysis	CAS Number	EPA RSL	EPA RML	WA MTCA Method A	WA MTCA Method B (Noncancer, Direct Contact)	WA MTCA Method B (Cancer, Direct Contact)	Date:	7/9/2019	7/9/2019	7/10/2019	7/10/2019	7/10/2019	7/10/2019
								Sampling Depth (feet):	5 - 7	9.5 - 12	10 - 12	15 - 17	5 - 7	10 - 12
								EPA Sample Number:	19070201	19070202	19070205	19070206	19070203	19070204
								Location:	BHASB05-07	BHASB9.5-12	BHBSB10-12	BHBSB15-17	BHCSB05-07	BHCSB10-12
								Units	Result	Result	Result	Result	Result	Result
Pesticides	beta-BHC	319-85-7	300	30,000	---	---	560	ug/kg	4.5 U	9.3 U	6.1 U	5.5 U	11 U	15 U
Pesticides	cis-Chlordane	5103-71-9	---	---	---	---	---	ug/kg	1.8 U	3.7 U	2.4 U	2.2 U	4.2 U	5.9 U
Pesticides	delta-BHC	319-86-8	---	---	---	---	---	ug/kg	2.7 U	5.6 U	3.6 U	3.3 U	6.4 U	7.7 JQ
Pesticides	Dieldrin	60-57-1	34	3,400	---	4,000	63	ug/kg	1.8 U	3.7 U	2.4 U	2.2 U	4.2 U	1.8 JQ
Pesticides	Endosulfan I	959-98-8	---	---	---	---	---	ug/kg	1.8 U	3.7 U	2.4 U	2.2 U	4.2 U	5.9 U
Pesticides	Endosulfan II	33213-65-9	---	---	---	---	---	ug/kg	1.8 U	3.7 U	2.4 U	2.2 U	4.2 U	5.9 U
Pesticides	Endosulfan sulfate	1031-07-8	380,000	1,100,000	---	480,000	---	ug/kg	1.8 U	3.7 U	2.4 U	2.2 U	4.2 U	9.8 U
Pesticides	Endrin	72-20-8	19,000	57,000	---	24,000	---	ug/kg	1.8 U	3.7 U	2.4 U	2.2 U	4.2 U	5.9 U
Pesticides	Endrin aldehyde	7421-93-4	---	---	---	---	---	ug/kg	18 U	37 U	24 U	22 U	42 U	98 U
Pesticides	Endrin ketone	53494-70-5	---	---	---	---	---	ug/kg	1.8 U	3.7 U	2.4 U	2.2 U	4.2 U	9.8 U
Pesticides	gamma-BHC (Lindane)	58-89-9	570	57,000	10	24,000	910	ug/kg	1.8 U	3.7 U	2.4 U	2.2 U	4.2 U	5.9 U
Pesticides	Heptachlor	76-44-8	130	13,000	---	40,000	220	ug/kg	2.7 U	5.6 U	3.6 U	3.3 U	6.4 U	8.8 U
Pesticides	Heptachlor epoxide	1024-57-3	70	3,100	---	1,000	110	ug/kg	2.7 U	5.6 U	3.6 U	3.3 U	6.4 U	8.8 U
Pesticides	Methoxychlor	72-43-5	320,000	950,000	---	400,000	---	ug/kg	8.9 U	19 U	12 U	11 U	21 U	49 U
Pesticides	Toxaphene	8001-35-2	490	17,000	---	7,200	910	ug/kg	89 U	190 U	120 U	110 U	210 U	290 U
Pesticides	trans-Chlordane	5103-74-2	---	---	---	---	---	ug/kg	2.7 U	5.6 U	3.6 U	3.3 U	1.1 JQ	3.2 JQ
SVOCs	1,2,4-Trichlorobenzene	120-82-1	24,000	170,000	---	800,000	34,000	ug/Kg	57 U	120 U	60 U	58 U	120 U	2,000 U
SVOCs	1,2-Dichlorobenzene	95-50-1	1,800,000	5,400,000	---	7,200,000	---	ug/Kg	57 U	120 U	60 U	58 U	120 U	2,000 U
SVOCs	1,3-Dichlorobenzene	541-73-1	---	---	---	---	---	ug/Kg	57 U	120 U	60 U	58 U	120 U	2,000 U
SVOCs	1,4-Dichlorobenzene	106-46-7	2,600	260,000	---	5,600,000	190,000	ug/Kg	57 U	120 U	60 U	58 U	120 U	2,000 U
SVOCs	1-Methylnaphthalene	90-12-0	18,000	1,800,000	---	5,600,000	34,000	ug/kg	34 U	74 U	36 U	35 U	72 U	1,200 U
SVOCs	2,4,5-Trichlorophenol	95-95-4	6,300,000	19,000,000	---	8,000,000	---	ug/Kg	230 U	490 U	240 U	230 U	480 U	8,100 U
SVOCs	2,4,6-Trichlorophenol	88-06-2	49,000	190,000	---	80,000	91,000	ug/Kg	170 U	370 U	180 U	170 U	360 U	6,100 U
SVOCs	2,4-Dichlorophenol	120-83-2	190,000	570,000	---	240,000	---	ug/Kg	110 U	250 U	120 U	120 U	240 U	4,100 U
SVOCs	2,4-Dimethylphenol	105-67-9	1,300,000	3,800,000	---	1,600,000	---	ug/Kg	110 U	250 U	120 U	120 U	240 U	4,100 U
SVOCs	2,4-Dinitrophenol	51-28-5	130,000	380,000	---	160,000	---	ug/Kg	1,100 U	2,500 U	1,200 U	1,200 U	2,400 U	41,000 U
SVOCs	2,4-Dinitrotoluene	121-14-2	1,700	170,000	---	160,000	3,200	ug/Kg	230 U	490 U	240 U	230 U	480 U	8,100 U
SVOCs	2,6-Dinitrotoluene	606-20-2	360	36,000	---	24,000	670	ug/Kg	170 U	370 U	180 U	170 U	360 U	6,100 U
SVOCs	2-Chloronaphthalene	91-58-7	4,800,000	14,000,000	---	6,400,000	---	ug/Kg	28 U	62 U	30 U	29 U	60 U	1,000 U
SVOCs	2-Chlorophenol	95-57-8	390,000	1,200,000	---	400,000	---	ug/Kg	230 U	490 U	240 U	230 U	480 U	8,100 U
SVOCs	2-Methylnaphthalene	91-57-6	240,000	720,000	---	320,000	---	ug/Kg	57 U	120 U	60 U	58 U	120 U	2,000 U
SVOCs	2-Methylphenol	95-48-7	3,200,000	9,500,000	---	4,000,000	---	ug/Kg	170 U	370 U	180 U	170 U	360 U	6,100 U
SVOCs	2-Nitroaniline	88-74-4	630,000	1,900,000	---	800,000	---	ug/Kg	110 U	250 U	120 U	120 U	240 U	4,100 U
SVOCs	2-Nitrophenol	88-75-5	---	---	---	---	---	ug/Kg	230 U	490 U	240 U	230 U	480 U	8,100 U
SVOCs	3 & 4 Methylphenol	15831-10-4	---	---	---	---	---	ug/kg	230 U	490 U	240 U	230 U	480 U	8,100 U
SVOCs	3,3'-Dichlorobenzidine	91-94-1	1,200	120,000	---	---	2,200	ug/Kg	450 U	990 U	480 U	470 U	950 U	16,000 U
SVOCs	3-Nitroaniline	99-09-2	---	---	---	---	---	ug/Kg	230 U	490 U	240 U	230 U	480 U	8,100 U
SVOCs	4,6-Dinitro-2-methylphenol	534-52-1	5,100	15,000	---	6,400	---	ug/Kg	1,100 U	2,500 U	1,200 U	1,200 U	2,400 U	41,000 U
SVOCs	4-Bromophenyl phenyl ether	101-55-3	---	---	---	---	---	ug/Kg	230 U	490 U	240 U	230 U	480 U	8,100 U

Table C-14  
2019 Borehole Soil Analytical Results  
May Creek Landfill  
15753 SE Renton Issaquah Rd  
Renton, WA

Group	Chemical Analysis	CAS Number	EPA RSL	EPA RML	WA MTCA Method A	WA MTCA Method B (Noncancer, Direct Contact)	WA MTCA Method B (Cancer, Direct Contact)	Date:	7/9/2019	7/9/2019	7/10/2019	7/10/2019	7/10/2019	7/10/2019
								Sampling Depth (feet):	5 - 7	9.5 - 12	10 - 12	15 - 17	5 - 7	10 - 12
								EPA Sample Number:	19070201	19070202	19070205	19070206	19070203	19070204
								Location:	BHASB05-07	BHASB9.5-12	BHBSB10-12	BHBSB15-17	BHCSB05-07	BHCSB10-12
								Units	Result	Result	Result	Result	Result	Result
SVOCs	4-Chloro-3-methylphenol	59-50-7	6,300,000	19,000,000	---	8,000,000	---	ug/Kg	170 U	370 U	180 U	170 U	360 U	6,100 U
SVOCs	4-Chloroaniline	106-47-8	2,700	270,000	---	320,000	5,000	ug/Kg	1,700 U	3,700 U	1,800 U	1,700 U	3,600 U	61,000 U
SVOCs	4-Chlorophenyl phenyl ether	7005-72-3	---	---	---	---	---	ug/Kg	230 U	490 U	240 U	230 U	480 U	8,100 U
SVOCs	4-Nitroaniline	100-01-6	27,000	760,000	---	---	---	ug/Kg	170 U	370 U	180 U	170 U	360 U	6,100 U
SVOCs	4-Nitrophenol	100-02-7	---	---	---	---	---	ug/Kg	1,700 U	3,700 U	1,800 U	1,700 U	3,600 U	61,000 U
SVOCs	Acenaphthene	83-32-9	3,600,000	11,000,000	---	4,800,000	---	ug/Kg	28 U	62 U	30 U	29 U	60 U	1,000 U
SVOCs	Acenaphthylene	208-96-8	---	---	---	---	---	ug/Kg	28 U	62 U	30 U	29 U	60 U	1,000 U
SVOCs	Anthracene	120-12-7	18,000,000	54,000,000	---	24,000,000	---	ug/Kg	28 U	62 U	30 U	29 U	60 U	1,000 U
SVOCs	Benzo[a]anthracene	56-55-3	1,100	110,000	---	---	---	ug/Kg	28 U	62 U	30 U	29 U	60 U	1,000 U
SVOCs	Benzo[a]pyrene	50-32-8	110	11,000	100	24,000	190	ug/Kg	68 U	150 U	72 U	70 U	140 U	2,400 U
SVOCs	Benzo[b]fluoranthene	205-99-2	1,100	110,000	---	---	---	ug/Kg	28 U	62 U	30 U	29 U	60 U	1,000 U
SVOCs	Benzo[g,h,i]perylene	191-24-2	---	---	---	---	---	ug/Kg	68 U	150 U	72 U	70 U	140 U	2,400 U
SVOCs	Benzo[k]fluoranthene	207-08-9	11,000	1,100,000	---	---	---	ug/Kg	68 U	150 U	72 U	70 U	140 U	2,400 U
SVOCs	Benzoic acid	65-85-0	250,000,000	760,000,000	---	320,000,000	---	ug/Kg	2,300 U	4,900 U	2,400 U	2,300 U	<b>1,700 JQ</b>	81,000 U
SVOCs	Benzyl alcohol	100-51-6	6,300,000	19,000,000	---	8,000,000	---	ug/Kg	570 U	1,200 U	600 U	580 U	1,200 U	20,000 U
SVOCs	Bis(2-chloroethoxy)methane	111-91-1	190,000	570,000	---	---	---	ug/Kg	230 U	490 U	240 U	230 U	480 U	8,100 U
SVOCs	Bis(2-chloroethyl)ether	111-44-4	230	23,000	---	---	910	ug/Kg	110 U	250 U	120 U	120 U	240 U	4,100 U
SVOCs	Bis(2-ethylhexyl) phthalate	117-81-7	39,000	3,800,000	---	1,600,000	71,000	ug/Kg	<b>200 JQ</b>	<b>280 JQ</b>	<b>620 JQ</b>	<b>470 JQ</b>	<b>250 JQ</b>	<b>3,400 JQ</b>
SVOCs	bis(chloroisopropyl) ether	108-60-1	3,100,000	9,400,000	---	3,200,000	14,000	ug/Kg	230 U	490 U	240 U	230 U	480 U	8,100 U
SVOCs	Butyl benzyl phthalate	85-68-7	290,000	29,000,000	---	16,000,000	530,000	ug/Kg	230 U	490 U	240 U	230 U	480 U	8,100 U
SVOCs	Carbazole	86-74-8	---	---	---	---	---	ug/Kg	170 U	370 U	180 U	170 U	360 U	6,100 U
SVOCs	Chrysene	218-01-9	110,000	11,000,000	---	---	---	ug/Kg	68 U	150 U	72 U	70 U	140 U	2,400 U
SVOCs	Dibenz(a,h)anthracene	53-70-3	110	11,000	---	---	---	ug/Kg	57 U	120 U	60 U	58 U	120 U	2,000 U
SVOCs	Dibenzofuran	132-64-9	73,000	220,000	---	80,000	---	ug/Kg	170 U	370 U	180 U	170 U	360 U	6,100 U
SVOCs	Diethyl phthalate	84-66-2	51,000,000	150,000,000	---	64,000,000	---	ug/Kg	1,700 U	3,700 U	1,800 U	1,700 U	3,600 U	61,000 U
SVOCs	Dimethyl phthalate	131-11-3	---	---	---	---	---	ug/Kg	170 U	370 U	180 U	170 U	360 U	6,100 U
SVOCs	Di-n-butyl phthalate	84-74-2	6,300,000	19,000,000	---	8,000,000	---	ug/Kg	570 U	1,200 U	600 U	580 U	1,200 U	20,000 U
SVOCs	Di-n-octyl phthalate	117-84-0	630,000	1,900,000	---	800,000	---	ug/Kg	170 U	370 U	180 U	170 U	360 U	6,100 U
SVOCs	Fluoranthene	206-44-0	2,400,000	7,200,000	---	3,200,000	---	ug/Kg	28 U	62 U	30 U	29 U	<b>16 JQ</b>	<b>240 JQ</b>
SVOCs	Fluorene	86-73-7	2,400,000	7,200,000	---	3,200,000	---	ug/Kg	28 U	62 U	30 U	29 U	60 U	1,000 U
SVOCs	Hexachlorobenzene	118-74-1	210	21,000	---	64,000	630	ug/Kg	57 U	120 U	60 U	58 U	120 U	2,000 U
SVOCs	Hexachlorobutadiene	87-68-3	1,200	120,000	---	80,000	13,000	ug/Kg	57 U	120 U	60 U	58 U	120 U	2,000 U
SVOCs	Hexachlorocyclopentadiene	77-47-4	1,800	5,300	---	480,000	---	ug/Kg	110 U	250 U	120 U	120 U	240 U	4,100 U
SVOCs	Hexachloroethane	67-72-1	1,800	130,000	---	56,000	25,000	ug/Kg	170 U	370 U	180 U	170 U	360 U	6,100 U
SVOCs	Indeno[1,2,3-cd]pyrene	193-39-5	1,100	110,000	---	---	---	ug/Kg	45 U	99 U	48 U	47 U	95 U	1,600 U
SVOCs	Isophorone	78-59-1	570,000	38,000,000	---	16,000,000	1,100,000	ug/Kg	170 U	370 U	180 U	170 U	360 U	6,100 U
SVOCs	Naphthalene	91-20-3	3,800	380,000	5,000	1,600,000	---	ug/Kg	28 U	62 U	30 U	29 U	60 U	1,000 U
SVOCs	Nitrobenzene	98-95-3	5,100	380,000	---	160,000	---	ug/Kg	230 U	490 U	240 U	230 U	480 U	8,100 U
SVOCs	N-Nitrosodi-n-propylamine	621-64-7	78	7,800	---	---	140	ug/Kg	<b>R</b>	<b>R</b>	<b>R</b>	<b>R</b>	<b>R</b>	<b>R</b>

**Table C-14**  
**2019 Borehole Soil Analytical Results**  
**May Creek Landfill**  
**15753 SE Renton Issaquah Rd**  
**Renton, WA**

Group	Chemical Analysis	CAS Number	EPA RSL	EPA RML	WA MTCA Method A	WA MTCA Method B (Noncancer, Direct Contact)	WA MTCA Method B (Cancer, Direct Contact)	Date:	7/9/2019	7/9/2019	7/10/2019	7/10/2019	7/10/2019	7/10/2019
								Sampling Depth (feet):	5 - 7	9.5 - 12	10 - 12	15 - 17	5 - 7	10 - 12
								EPA Sample Number:	19070201	19070202	19070205	19070206	19070203	19070204
								Location:	BHASB05-07	BHASB9.5-12	BHBSB10-12	BHBSB15-17	BHCSB05-07	BHCSB10-12
								Units	Result	Result	Result	Result	Result	Result
SVOCs	N-Nitrosodiphenylamine	86-30-6	110,000	11,000,000	---	---	200,000	ug/Kg	68 U	150 U	72 U	70 U	140 U	2,400 U
SVOCs	Pentachlorophenol	87-86-5	1,000	100,000	---	400,000	2,500	ug/Kg	510 U	1,100 U	540 U	520 U	1,100 U	18,000 U
SVOCs	Phenanthrene	85-01-8	---	---	---	---	---	ug/Kg	68 U	150 U	72 U	70 U	140 U	2,400 U
SVOCs	Phenol	108-95-2	19,000,000	57,000,000	---	24,000,000	---	ug/Kg	170 U	370 U	180 U	170 U	360 U	6,100 U
SVOCs	Pyrene	129-00-0	1,800,000	5,400,000	---	2,400,000	---	ug/Kg	68 U	150 U	72 U	70 U	140 U	<b>260 JQ</b>
VOCs	1,1,1,2-Tetrachloroethane	630-20-6	2,000	200,000	---	2,400,000	38,000	ug/Kg	2.6 UJK	5.3 UJK	2.6 UJK	2.3 UJK	6.2 UJL	2.8 UJL
VOCs	1,1,1-Trichloroethane	71-55-6	8,100,000	24,000,000	2,000	160,000,000	---	ug/Kg	1.7 UJK	3.5 UJK	1.7 UJK	1.6 UJK	4.1 UJL	1.9 UJL
VOCs	1,1,2,2-Tetrachloroethane	79-34-5	600	60,000	---	1,600,000	5,000	ug/Kg	3.5 UJK	7.0 UJK	3.4 UJK	3.1 UJK	8.3 UJL	3.7 UJL
VOCs	1,1,2-Trichloroethane	79-00-5	1,100	4,500	---	320,000	18,000	ug/Kg	1.7 UJK	3.5 UJK	1.7 UJK	1.6 UJK	4.1 UJL	1.9 UJL
VOCs	1,1-Dichloroethane	75-34-3	3,600	360,000	---	16,000,000	180,000	ug/Kg	0.86 UJK	1.8 UJK	0.85 UJK	0.78 UJK	2.1 UJL	0.93 UJL
VOCs	1,1-Dichloroethene	75-35-4	230,000	680,000	---	4,000,000	---	ug/Kg	4.3 UJK	8.8 UJK	4.3 UJK	3.9 UJK	10 UJL	4.6 UJL
VOCs	1,1-Dichloropropene	563-58-6	---	---	---	---	---	ug/Kg	1.7 UJK	3.5 UJK	1.7 UJK	1.6 UJK	4.1 UJL	1.9 UJL
VOCs	1,2,3-Trichlorobenzene	87-61-6	63,000	190,000	---	---	---	ug/Kg	2.6 UJK	5.3 UJK	2.6 UJK	2.3 UJK	6.2 UJL	2.8 UJL
VOCs	1,2,3-Trichloropropane	96-18-4	5.1	510	---	320,000	33	ug/Kg	4.3 UJK	8.8 UJK	4.3 UJK	3.9 UJK	10 UJL	4.6 UJL
VOCs	1,2,4-Trichlorobenzene	120-82-1	24,000	170,000	---	800,000	34,000	ug/Kg	1.7 UJK	3.5 UJK	1.7 UJK	1.6 UJK	4.1 UJL	1.9 UJL
VOCs	1,2,4-Trimethylbenzene	95-63-6	300,000	910,000	---	800,000	---	ug/Kg	4.3 UJK	8.8 UJK	4.3 UJK	3.9 UJK	10 UJL	4.6 UJL
VOCs	1,2-Dibromo-3-Chloropropane	96-12-8	5.3	530	---	16,000	1,300	ug/Kg	8.6 UJK	18 UJK	8.5 UJK	7.8 UJK	21 UJL	9.3 UJL
VOCs	1,2-Dibromoethane	106-93-4	36	3,600	5	720,000	500	ug/Kg	0.86 UJK	1.8 UJK	0.85 UJK	0.78 UJK	2.1 UJL	0.93 UJL
VOCs	1,2-Dichlorobenzene	95-50-1	1,800,000	5,400,000	---	7,200,000	---	ug/Kg	8.6 UJK	18 UJK	8.5 UJK	7.8 UJK	21 UJL	9.3 UJL
VOCs	1,2-Dichloroethane	107-06-2	460	46,000	---	480,000	11,000	ug/Kg	0.86 UJK	1.8 UJK	0.85 UJK	0.78 UJK	2.1 UJL	0.93 UJL
VOCs	1,2-Dichloropropane	78-87-5	2,500	47,000	---	3,200,000	27,000	ug/Kg	1.7 UJK	3.5 UJK	1.7 UJK	1.6 UJK	4.1 UJL	1.9 UJL
VOCs	1,3,5-Trimethylbenzene	108-67-8	270,000	810,000	---	800,000	---	ug/Kg	4.3 UJK	8.8 UJK	4.3 UJK	3.9 UJK	10 UJL	4.6 UJL
VOCs	1,3-Dichlorobenzene	541-73-1	---	---	---	---	---	ug/Kg	4.3 UJK	8.8 UJK	4.3 UJK	3.9 UJK	10 UJL	4.6 UJL
VOCs	1,3-Dichloropropane	142-28-9	1,600,000	4,700,000	---	---	---	ug/Kg	1.7 UJK	3.5 UJK	1.7 UJK	1.6 UJK	4.1 UJL	1.9 UJL
VOCs	1,4-Dichlorobenzene	106-46-7	2,600	260,000	---	5,600,000	190,000	ug/Kg	4.3 UJK	8.8 UJK	4.3 UJK	3.9 UJK	10 UJL	4.6 UJL
VOCs	2,2-Dichloropropane	594-20-7	---	---	---	---	---	ug/Kg	4.3 UJK	8.8 UJK	4.3 UJK	3.9 UJK	10 UJL	4.6 UJL
VOCs	2-Chlorotoluene	95-49-8	1,600,000	4,700,000	---	1,600,000	---	ug/Kg	4.3 UJK	8.8 UJK	4.3 UJK	3.9 UJK	10 UJL	4.6 UJL
VOCs	4-Chlorotoluene	106-43-4	1,600,000	4,700,000	---	---	---	ug/Kg	4.3 UJK	8.8 UJK	4.3 UJK	3.9 UJK	10 UJL	4.6 UJL
VOCs	4-Isopropyltoluene	99-87-6	---	---	---	---	---	ug/Kg	1.7 UJK	3.5 UJK	1.7 UJK	<b>0.75 JQ</b>	4.1 UJL	1.9 UJL
VOCs	Benzene	71-43-2	1,200	120,000	30	320,000	18,000	ug/Kg	1.7 UJK	3.5 UJK	1.7 UJK	1.6 UJK	4.1 UJL	1.9 UJL
VOCs	Bromobenzene	108-86-1	290,000	860,000	---	---	640,000	ug/Kg	8.6 UJK	18 UJK	8.5 UJK	7.8 UJK	21 UJL	9.3 UJL
VOCs	Bromochloromethane	74-97-5	150,000	450,000	---	---	---	ug/Kg	1.7 UJK	3.5 UJK	1.7 UJK	1.6 UJK	4.1 UJL	1.9 UJL
VOCs	Bromodichloromethane	75-27-4	290	29,000	---	1,600,000	16,000	ug/Kg	0.86 UJK	1.8 UJK	0.85 UJK	0.78 UJK	2.1 UJL	0.93 UJL
VOCs	Bromoform	75-25-2	19,000	1,900,000	---	1,600,000	130,000	ug/Kg	4.3 UJK	8.8 UJK	4.3 UJK	3.9 UJK	10 UJL	4.6 UJL
VOCs	Bromomethane	74-83-9	6,800	21,000	---	110,000	---	ug/Kg	0.86 UJK	1.8 UJK	0.85 UJK	0.78 UJK	2.1 UJL	0.93 UJL
VOCs	Carbon tetrachloride	56-23-5	650	65,000	---	320,000	14,000	ug/Kg	1.7 UJK	3.5 UJK	1.7 UJK	1.6 UJK	4.1 UJL	1.9 UJL
VOCs	Chlorobenzene	108-90-7	280,000	830,000	---	1,600,000	---	ug/Kg	1.7 UJK	3.5 UJK	1.7 UJK	1.6 UJK	4.1 UJL	1.9 UJL
VOCs	Chloroethane	75-00-3	14,000,000	41,000,000	---	---	---	ug/Kg	8.6 UJK	18 UJK	8.5 UJK	7.8 UJK	21 UJL	9.3 UJL
VOCs	Chloroform	67-66-3	320	32,000	---	800,000	32,000	ug/Kg	1.7 UJK	3.5 UJK	1.7 UJK	1.6 UJK	4.1 UJL	1.9 UJL

Table C-14  
2019 Borehole Soil Analytical Results  
May Creek Landfill  
15753 SE Renton Issaquah Rd  
Renton, WA

Group	Chemical Analysis	CAS Number	EPA RSL	EPA RML	WA MTCA Method A	WA MTCA Method B (Noncancer, Direct Contact)	WA MTCA Method B (Cancer, Direct Contact)	Date:	7/9/2019	7/9/2019	7/10/2019	7/10/2019	7/10/2019	7/10/2019
								Sampling Depth (feet):	5 - 7	9.5 - 12	10 - 12	15 - 17	5 - 7	10 - 12
								EPA Sample Number:	19070201	19070202	19070205	19070206	19070203	19070204
								Location:	BHASB05-07	BHASB9.5-12	BHBSB10-12	BHBSB15-17	BHCSB05-07	BHCSB10-12
								Units	Result	Result	Result	Result	Result	Result
VOCs	Chloromethane	74-87-3	110,000	330,000	---	---	---	ug/Kg	4.3 UJK	8.8 UJK	4.3 UJK	3.9 UJK	10 UJL	4.6 UJL
VOCs	cis-1,2-Dichloroethene	156-59-2	160,000	470,000	---	160,000	---	ug/Kg	2.6 UJK	5.3 UJK	2.6 UJK	2.3 UJK	6.2 UJL	2.8 UJL
VOCs	cis-1,3-Dichloropropene	10061-01-5	---	---	---	---	---	ug/Kg	0.86 UJK	1.8 UJK	0.85 UJK	0.78 UJK	2.1 UJL	0.93 UJL
VOCs	Dibromochloromethane	124-48-1	8,300	830,000	---	1,600,000	12,000	ug/Kg	1.3 UJK	2.6 UJK	1.3 UJK	1.2 UJK	3.1 UJL	1.4 UJL
VOCs	Dibromomethane	74-95-3	24,000	71,000	---	800,000	---	ug/Kg	0.86 UJK	1.8 UJK	0.85 UJK	0.78 UJK	2.1 UJL	0.93 UJL
VOCs	Dichlorodifluoromethane	75-71-8	87,000	260,000	---	16,000,000	---	ug/Kg	1.7 UJK	3.5 UJK	1.7 UJK	1.6 UJK	4.1 UJL	1.9 UJL
VOCs	Ethylbenzene	100-41-4	5,800	580,000	6,000	8,000,000	---	ug/Kg	1.7 UJK	3.5 UJK	1.7 UJK	1.6 UJK	4.1 UJL	1.9 UJL
VOCs	Hexachlorobutadiene	87-68-3	1,200	120,000	---	80,000	13,000	ug/Kg	2.6 UJK	5.3 UJK	2.6 UJK	2.3 UJK	6.2 UJL	2.8 UJL
VOCs	Isopropylbenzene	98-82-8	1,900,000	5,800,000	---	8,000,000	---	ug/Kg	1.7 UJK	3.5 UJK	1.7 UJK	1.6 UJK	4.1 UJL	1.9 UJL
VOCs	Methyl tert-butyl ether	1634-04-4	47,000	4,700,000	100	---	560,000	ug/Kg	1.7 UJK	3.5 UJK	1.7 UJK	1.6 UJK	4.1 UJL	1.9 UJL
VOCs	Methylene Chloride	75-09-2	57,000	1,000,000	20	480,000	500,000	ug/Kg	<b>12 JQ</b>	<b>18 JQ</b>	34 UJK	31 UJK	83 UJL	37 UJL
VOCs	m-Xylene & p-Xylene	179601-23-1	580,000	1,700,000	9,000	16,000,000	---	ug/Kg	8.6 UJK	18 UJK	8.5 UJK	7.8 UJK	21 UJL	9.3 UJL
VOCs	Naphthalene	91-20-3	3,800	380,000	5,000	1,600,000	---	ug/Kg	8.6 UJK	18 UJK	8.5 UJK	7.8 UJK	21 UJL	9.3 UJL
VOCs	n-Butylbenzene	104-51-8	3,900,000	12,000,000	---	4,000,000	---	ug/Kg	2.6 UJK	5.3 UJK	2.6 UJK	2.3 UJK	6.2 UJL	2.8 UJL
VOCs	N-Propylbenzene	103-65-1	3,800,000	11,000,000	---	8,000,000	---	ug/Kg	4.3 UJK	8.8 UJK	4.3 UJK	3.9 UJK	10 UJL	4.6 UJL
VOCs	o-Xylene	95-47-6	650,000	1,900,000	9,000	16,000,000	---	ug/Kg	4.3 UJK	8.8 UJK	4.3 UJK	3.9 UJK	10 UJL	4.6 UJL
VOCs	sec-Butylbenzene	135-98-8	7,800,000	23,000,000	---	8,000,000	---	ug/Kg	2.6 UJK	5.3 UJK	2.6 UJK	2.3 UJK	6.2 UJL	2.8 UJL
VOCs	Styrene	100-42-5	6,000,000	18,000,000	---	16,000,000	---	ug/Kg	2.6 UJK	5.3 UJK	2.6 UJK	2.3 UJK	6.2 UJL	2.8 UJL
VOCs	t-Butylbenzene	98-06-6	7,800,000	23,000,000	---	8,000,000	---	ug/Kg	2.6 UJK	5.3 UJK	2.6 UJK	2.3 UJK	6.2 UJL	2.8 UJL
VOCs	Tetrachloroethene	127-18-4	24,000	240,000	50	480,000	480,000	ug/Kg	1.7 UJK	3.5 UJK	1.7 UJK	1.6 UJK	4.1 UJL	1.9 UJL
VOCs	Toluene	108-88-3	4,900,000	15,000,000	7,000	6,400,000	---	ug/Kg	8.6 UJK	18 UJK	8.5 UJK	7.8 UJK	21 UJL	9.3 UJL
VOCs	trans-1,2-Dichloroethene	156-60-5	1,600,000	4,700,000	---	1,600,000	---	ug/Kg	1.7 UJK	3.5 UJK	1.7 UJK	1.6 UJK	4.1 UJL	1.9 UJL
VOCs	trans-1,3-Dichloropropene	10061-02-6	---	---	---	---	---	ug/Kg	8.6 UJK	18 UJK	8.5 UJK	7.8 UJK	21 UJL	9.3 UJL
VOCs	Trichloroethene	79-01-6	940	12,000	30	40,000	12,000	ug/Kg	1.7 UJK	3.5 UJK	1.7 UJK	1.6 UJK	4.1 UJL	1.9 UJL
VOCs	Trichlorofluoromethane	75-69-4	23,000,000	70,000,000	---	24,000,000	---	ug/Kg	1.7 UJK	3.5 UJK	1.7 UJK	1.6 UJK	4.1 UJL	1.9 UJL
VOCs	Vinyl chloride	75-01-4	59	5,900	---	240,000	670	ug/Kg	1.7 UJK	3.5 UJK	1.7 UJK	1.6 UJK	4.1 UJL	1.9 UJL



Table C-14  
2019 Borehole Soil Analytical Results  
May Creek Landfill  
15753 SE Renton Issaquah Rd  
Renton, WA

Group	Chemical Analysis	CAS Number	EPA RSL	EPA RML	WA MTCA Method A	WA MTCA Method B (Noncancer, Direct Contact)	WA MTCA Method B (Cancer, Direct Contact)	Date:	7/11/2019	7/11/2019	7/11/2019	7/12/2019	7/12/2019
								Sampling Depth (feet):	0 - 2	2.5 - 4.5	12.5 - 14.5	10 - 12	15 - 17
								EPA Sample Number:	19070207	19070208	19070209	19070212	19070213
								Location:	BHDSB0-2	BHDSB2.5-4.5	BHDSB12.5-14.5	BHESB10-12	BHESB15-17
								Units	Result	Result	Result	Result	Result
Dx	Diesel	STL00163	--	--	2,000	--	--	mg/Kg	390 JQ	250 JQ	54 U	55 U	54 U
Dx	Motor Oil	STL00299	--	--	2,000	--	--	mg/Kg	1,500	2,000	54 U	55 U	54 U
Gx	Gasoline	STL00228	--	--	30	--	--	mg/Kg	190	710	5.1 U	4.6 UJK	5.6 UJK
Metals	Aluminum	7429-90-5	77,000	230,000	--	80,000	--	mg/Kg	7,900	12,000	18,000	19,000	12,000
Metals	Antimony	7440-36-0	31	94	--	32	--	mg/Kg	1.3 JQ	2.7	0.33 JQ	0.32 JQ	2.4 U
Metals	Arsenic	7440-38-2	0.68	68	20	24	0.67	mg/Kg	3.8	7.8	2.7	2.4	2.6
Metals	Barium	7440-39-3	15,000	46,000	--	16,000	--	mg/Kg	52	110	63	72	55
Metals	Beryllium	7440-41-7	160	470	--	160	--	mg/Kg	0.13 JQ	0.20 JQ	0.24 JQ	0.18 JQ	0.17 JQ
Metals	Cadmium	7440-43-9	71	210	2	80	--	mg/Kg	0.78 U	0.75 U	0.79 U	0.80 U	0.79 U
Metals	Calcium	7440-70-2	--	--	--	--	--	mg/Kg	20,000	13,000	2,800	2,400	5,600
Metals	Chromium	7440-47-3	--	--	2,000	120,000	--	mg/Kg	22	57	21	24	26
Metals	Cobalt	7440-48-4	23	70	--	--	--	mg/Kg	4.5	7.1	8.0	5.6	9.0
Metals	Copper	7440-50-8	3,100	9,400	--	3,200	--	mg/Kg	18	41	19	18	26
Metals	Iron	7439-89-6	55,000	160,000	--	56,000	--	mg/Kg	9,900	15,000	18,000	15,000	20,000
Metals	Lead	7439-92-1	400	400	250	--	--	mg/Kg	31	100	1.9	1.6	2.1
Metals	Magnesium	7439-95-4	--	--	--	--	--	mg/Kg	7,300	4,500	4,000	3,400	4,900
Metals	Manganese	7439-96-5	1,800	5,500	--	3,700	--	mg/Kg	230	310	340	170	360
Metals	Mercury	7439-97-6	11,000	33,000	2,000	--	--	ug/Kg	59	180	29	35	32
Metals	Nickel	7440-02-0	1,500	4,600	--	1,600	--	mg/Kg	18	49	21	22	30
Metals	Potassium	7440-09-7	--	--	--	--	--	mg/Kg	350	390	340	670	550
Metals	Selenium	7782-49-2	390	1,200	--	400	--	mg/Kg	3.9 U	3.7 U	3.9 U	4.0 U	4.0 U
Metals	Silver	7440-22-4	390	1,200	--	400	--	mg/Kg	1.9 U	1.9 U	2.0 U	2.0 U	2.0 U
Metals	Sodium	7440-23-5	--	--	--	--	--	mg/Kg	160	190	210	150	420
Metals	Thallium	7440-28-0	0.78	2.3	--	0.8	--	mg/Kg	3.9 U	3.7 U	3.9 U	4.0 U	4.0 U
Metals	Vanadium	7440-62-2	390	1,200	--	400	--	mg/Kg	25	37	40	39	46
Metals	Zinc	7440-66-6	23,000	70,000	--	24,000	--	mg/Kg	91	150	31	24	38
PCBs	PCB-1016	12674-11-2	4,100	12,000	--	5,600	14,000	ug/Kg	23 U	23 U	22 U	23 U	23 U
PCBs	PCB-1221	11104-28-2	200	20,000	--	--	--	ug/Kg	23 U	23 U	22 U	23 U	23 U
PCBs	PCB-1232	11141-16-5	170	17,000	--	--	--	ug/Kg	23 U	23 U	22 U	23 U	23 U
PCBs	PCB-1242	53469-21-9	230	23,000	--	--	--	ug/Kg	23 U	23 U	22 U	23 U	23 U
PCBs	PCB-1248	12672-29-6	230	23,000	--	1,600	--	ug/Kg	28	23 U	22 U	23 U	23 U
PCBs	PCB-1254	11097-69-1	240	3,500	--	--	500	ug/Kg	23 U	23 U	22 U	23 U	23 U
PCBs	PCB-1260	11096-82-5	240	24,000	--	--	500	ug/Kg	23 U	23 U	22 U	23 U	23 U
Total PCB	Total PCB	1336-36-3	230	23,000	1,000	--	500	ug/Kg	28	--	--	--	--
Pesticides	4,4'-DDD	72-54-8	1,900	5,700	--	2,400	4,200	ug/kg	16	77 JL	2.2 U	2.3 U	2.3 U
Pesticides	4,4'-DDE	72-55-9	2,000	70,000	--	24,000	2,900	ug/kg	2.6 JQ	160 JL	2.2 U	2.3 U	2.3 U
Pesticides	4,4'-DDT	50-29-3	1,900	110,000	3,000	40,000	2,900	ug/kg	8.3	17 JL	2.2 U	2.3 U	2.3 U
Pesticides	Aldrin	309-00-2	39	3,900	--	2,400	59	ug/kg	11 U	3.4 UJL	3.4 U	3.4 U	3.4 U
Pesticides	alpha-BHC	319-84-6	86	8,600	--	640,000	160	ug/kg	7.0 U	0.79 JQ	2.2 U	2.3 U	2.3 U

**Table C-14**  
**2019 Borehole Soil Analytical Results**  
**May Creek Landfill**  
**15753 SE Renton Issaquah Rd**  
**Renton, WA**

Group	Chemical Analysis	CAS Number	EPA RSL	EPA RML	WA MTCA Method A	WA MTCA Method B (Noncancer, Direct Contact)	WA MTCA Method B (Cancer, Direct Contact)	Date:	7/11/2019	7/11/2019	7/11/2019	7/12/2019	7/12/2019
								Sampling Depth (feet):	0 - 2	2.5 - 4.5	12.5 - 14.5	10 - 12	15 - 17
								EPA Sample Number:	19070207	19070208	19070209	19070212	19070213
								Location:	BHDSB0-2	BHDSB2.5-4.5	BHDSB12.5-14.5	BHESB10-12	BHESB15-17
								Units	Result	Result	Result	Result	Result
Pesticides	beta-BHC	319-85-7	300	30,000	---	---	560	ug/kg	18 U	5.7 UJL	5.6 U	5.7 U	5.7 U
Pesticides	cis-Chlordane	5103-71-9	---	---	---	---	---	ug/kg	7.0 U	2.3 UJL	2.2 U	2.3 U	2.3 U
Pesticides	delta-BHC	319-86-8	---	---	---	---	---	ug/kg	11 U	3.4 UJL	3.4 U	3.4 U	3.4 U
Pesticides	Dieldrin	60-57-1	34	3,400	---	4,000	63	ug/kg	<b>2.6 JQ</b>	2.3 UJL	2.2 U	2.3 U	2.3 U
Pesticides	Endosulfan I	959-98-8	---	---	---	---	---	ug/kg	7.0 U	2.3 UJL	2.2 U	2.3 U	2.3 U
Pesticides	Endosulfan II	33213-65-9	---	---	---	---	---	ug/kg	7.0 U	2.3 UJL	2.2 U	2.3 U	2.3 U
Pesticides	Endosulfan sulfate	1031-07-8	380,000	1,100,000	---	480,000	---	ug/kg	7.0 U	2.3 UJL	2.2 U	2.3 U	2.3 U
Pesticides	Endrin	72-20-8	19,000	57,000	---	24,000	---	ug/kg	7.0 U	2.3 UJL	2.2 U	2.3 U	2.3 U
Pesticides	Endrin aldehyde	7421-93-4	---	---	---	---	---	ug/kg	70 U	23 UJL	22 U	23 U	23 U
Pesticides	Endrin ketone	53494-70-5	---	---	---	---	---	ug/kg	7.0 U	2.3 UJL	2.2 U	2.3 U	2.3 U
Pesticides	gamma-BHC (Lindane)	58-89-9	570	57,000	10	24,000	910	ug/kg	7.0 U	2.3 UJL	2.2 U	2.3 U	2.3 U
Pesticides	Heptachlor	76-44-8	130	13,000	---	40,000	220	ug/kg	11 U	3.4 UJL	3.4 U	3.4 U	3.4 U
Pesticides	Heptachlor epoxide	1024-57-3	70	3,100	---	1,000	110	ug/kg	11 U	3.4 UJL	3.4 U	3.4 U	3.4 U
Pesticides	Methoxychlor	72-43-5	320,000	950,000	---	400,000	---	ug/kg	35 U	11 UJL	11 U	11 U	11 U
Pesticides	Toxaphene	8001-35-2	490	17,000	---	7,200	910	ug/kg	350 U	350 UJL	110 U	110 U	110 U
Pesticides	trans-Chlordane	5103-74-2	---	---	---	---	---	ug/kg	<b>2.3 JQ</b>	3.4 UJL	3.4 U	3.4 U	3.4 U
SVOCs	1,2,4-Trichlorobenzene	120-82-1	24,000	170,000	---	800,000	34,000	ug/Kg	550 U	270 U	52 U	47 U	47 U
SVOCs	1,2-Dichlorobenzene	95-50-1	1,800,000	5,400,000	---	7,200,000	---	ug/Kg	550 U	270 U	52 U	47 U	47 U
SVOCs	1,3-Dichlorobenzene	541-73-1	---	---	---	---	---	ug/Kg	550 U	270 U	52 U	47 U	47 U
SVOCs	1,4-Dichlorobenzene	106-46-7	2,600	260,000	---	5,600,000	190,000	ug/Kg	550 U	270 U	52 U	47 U	47 U
SVOCs	1-Methylnaphthalene	90-12-0	18,000	1,800,000	---	5,600,000	34,000	ug/kg	<b>2,000</b>	<b>400</b>	31 U	28 U	28 U
SVOCs	2,4,5-Trichlorophenol	95-95-4	6,300,000	19,000,000	---	8,000,000	---	ug/Kg	2,200 U	1,100 U	210 U	190 U	190 U
SVOCs	2,4,6-Trichlorophenol	88-06-2	49,000	190,000	---	80,000	91,000	ug/Kg	1,600 U	810 U	150 U	140 U	140 U
SVOCs	2,4-Dichlorophenol	120-83-2	190,000	570,000	---	240,000	---	ug/Kg	1,100 U	540 U	100 U	94 U	93 U
SVOCs	2,4-Dimethylphenol	105-67-9	1,300,000	3,800,000	---	1,600,000	---	ug/Kg	1,100 U	540 U	100 U	94 U	93 U
SVOCs	2,4-Dinitrophenol	51-28-5	130,000	380,000	---	160,000	---	ug/Kg	11,000 U	5,400 U	1,000 U	940 U	930 U
SVOCs	2,4-Dinitrotoluene	121-14-2	1,700	170,000	---	160,000	3,200	ug/Kg	2,200 U	1,100 U	210 U	190 U	190 U
SVOCs	2,6-Dinitrotoluene	606-20-2	360	36,000	---	24,000	670	ug/Kg	1,600 U	810 U	150 U	140 U	140 U
SVOCs	2-Chloronaphthalene	91-58-7	4,800,000	14,000,000	---	6,400,000	---	ug/Kg	270 U	140 U	26 U	24 U	23 U
SVOCs	2-Chlorophenol	95-57-8	390,000	1,200,000	---	400,000	---	ug/Kg	2,200 U	1,100 U	210 U	190 U	190 U
SVOCs	2-Methylnaphthalene	91-57-6	240,000	720,000	---	320,000	---	ug/Kg	<b>2,200</b>	<b>540</b>	52 U	47 U	47 U
SVOCs	2-Methylphenol	95-48-7	3,200,000	9,500,000	---	4,000,000	---	ug/Kg	1,600 U	810 U	150 U	140 U	140 U
SVOCs	2-Nitroaniline	88-74-4	630,000	1,900,000	---	800,000	---	ug/Kg	1,100 U	540 U	100 U	94 U	93 U
SVOCs	2-Nitrophenol	88-75-5	---	---	---	---	---	ug/Kg	2,200 U	1,100 U	210 U	190 U	190 U
SVOCs	3 & 4 Methylphenol	15831-10-4	---	---	---	---	---	ug/kg	2,200 U	1,100 U	210 U	190 U	190 U
SVOCs	3,3'-Dichlorobenzidine	91-94-1	1,200	120,000	---	---	2,200	ug/Kg	4,400 U	2,200 U	410 U	380 U	370 U
SVOCs	3-Nitroaniline	99-09-2	---	---	---	---	---	ug/Kg	2,200 U	1,100 U	210 U	190 U	190 U
SVOCs	4,6-Dinitro-2-methylphenol	534-52-1	5,100	15,000	---	6,400	---	ug/Kg	11,000 U	5,400 U	1,000 U	940 U	930 U
SVOCs	4-Bromophenyl phenyl ether	101-55-3	---	---	---	---	---	ug/Kg	2,200 U	1,100 U	210 U	190 U	190 U

**Table C-14**  
**2019 Borehole Soil Analytical Results**  
**May Creek Landfill**  
**15753 SE Renton Issaquah Rd**  
**Renton, WA**

Group	Chemical Analysis	CAS Number	EPA RSL	EPA RML	WA MTCA Method A	WA MTCA Method B (Noncancer, Direct Contact)	WA MTCA Method B (Cancer, Direct Contact)	Date:	7/11/2019	7/11/2019	7/11/2019	7/12/2019	7/12/2019
								Sampling Depth (feet):	0 - 2	2.5 - 4.5	12.5 - 14.5	10 - 12	15 - 17
								EPA Sample Number:	19070207	19070208	19070209	19070212	19070213
								Location:	BHDSB0-2	BHDSB2.5-4.5	BHDSB12.5-14.5	BHESB10-12	BHESB15-17
								Units	Result	Result	Result	Result	Result
SVOCs	4-Chloro-3-methylphenol	59-50-7	6,300,000	19,000,000	---	8,000,000	---	ug/Kg	1,600 U	810 U	150 U	140 U	140 U
SVOCs	4-Chloroaniline	106-47-8	2,700	270,000	---	320,000	5,000	ug/Kg	16,000 U	8,100 U	1,500 U	1,400 U	1,400 U
SVOCs	4-Chlorophenyl phenyl ether	7005-72-3	---	---	---	---	---	ug/Kg	2,200 U	1,100 U	210 U	190 U	190 U
SVOCs	4-Nitroaniline	100-01-6	27,000	760,000	---	---	---	ug/Kg	1,600 UJL	810 UJL	150 UJL	140 U	140 U
SVOCs	4-Nitrophenol	100-02-7	---	---	---	---	---	ug/Kg	16,000 UJL	8,100 UJL	1,500 UJL	1,400 U	1,400 U
SVOCs	Acenaphthene	83-32-9	3,600,000	11,000,000	---	4,800,000	---	ug/Kg	270 U	140 U	26 U	24 U	23 U
SVOCs	Acenaphthylene	208-96-8	---	---	---	---	---	ug/Kg	270 U	<b>31 JQ</b>	26 U	24 U	23 U
SVOCs	Anthracene	120-12-7	18,000,000	54,000,000	---	24,000,000	---	ug/Kg	<b>97 JQ</b>	140 U	26 U	24 U	23 U
SVOCs	Benzo[a]anthracene	56-55-3	1,100	110,000	---	---	---	ug/Kg	<b>240 JQ</b>	<b>85 JQ</b>	26 U	24 U	23 U
SVOCs	Benzo[a]pyrene	50-32-8	110	11,000	100	24,000	190	ug/Kg	<b>260 JQ</b>	<b>110 JQ</b>	62 U	56 U	56 U
SVOCs	Benzo[b]fluoranthene	205-99-2	1,100	110,000	---	---	---	ug/Kg	<b>290</b>	<b>170</b>	26 U	24 U	23 U
SVOCs	Benzo[g,h,i]perylene	191-24-2	---	---	---	---	---	ug/Kg	<b>230 JQ</b>	<b>110 JQ</b>	62 U	56 U	56 U
SVOCs	Benzo[k]fluoranthene	207-08-9	11,000	1,100,000	---	---	---	ug/Kg	660 U	330 U	62 U	56 U	56 U
SVOCs	Benzoic acid	65-85-0	250,000,000	760,000,000	---	320,000,000	---	ug/Kg	22,000 U	11,000 U	2,100 U	1,900 U	1,900 U
SVOCs	Benzyl alcohol	100-51-6	6,300,000	19,000,000	---	8,000,000	---	ug/Kg	5,500 U	2,700 U	520 U	470 U	470 U
SVOCs	Bis(2-chloroethoxy)methane	111-91-1	190,000	570,000	---	---	---	ug/Kg	2,200 U	1,100 U	210 U	190 U	190 U
SVOCs	Bis(2-chloroethyl)ether	111-44-4	230	23,000	---	---	910	ug/Kg	1,100 UJL	540 UJL	100 UJL	94 U	93 U
SVOCs	Bis(2-ethylhexyl) phthalate	117-81-7	39,000	3,800,000	---	1,600,000	71,000	ug/Kg	<b>1,500 JQ</b>	<b>510 JQ</b>	620 U	<b>88 JQ</b>	560 U
SVOCs	bis(chloroisopropyl) ether	108-60-1	3,100,000	9,400,000	---	3,200,000	14,000	ug/Kg	2,200 U	1,100 U	210 U	190 U	190 U
SVOCs	Butyl benzyl phthalate	85-68-7	290,000	29,000,000	---	16,000,000	530,000	ug/Kg	<b>1,000 JQ</b>	<b>430 JQ</b>	210 U	<b>81 JQ</b>	<b>60 JQ</b>
SVOCs	Carbazole	86-74-8	---	---	---	---	---	ug/Kg	1,600 U	810 U	150 U	140 U	140 U
SVOCs	Chrysene	218-01-9	110,000	11,000,000	---	---	---	ug/Kg	<b>430 JQ</b>	<b>220 JQ</b>	62 U	56 U	56 U
SVOCs	Dibenz(a,h)anthracene	53-70-3	110	11,000	---	---	---	ug/Kg	550 U	270 U	52 U	47 U	47 U
SVOCs	Dibenzofuran	132-64-9	73,000	220,000	---	80,000	---	ug/Kg	1,600 U	810 U	150 U	140 U	140 U
SVOCs	Diethyl phthalate	84-66-2	51,000,000	150,000,000	---	64,000,000	---	ug/Kg	16,000 U	8,100 U	1,500 U	1,400 U	1,400 U
SVOCs	Dimethyl phthalate	131-11-3	---	---	---	---	---	ug/Kg	1,600 U	810 U	150 U	140 U	140 U
SVOCs	Di-n-butyl phthalate	84-74-2	6,300,000	19,000,000	---	8,000,000	---	ug/Kg	5,500 U	2,700 U	520 U	470 U	470 U
SVOCs	Di-n-octyl phthalate	117-84-0	630,000	1,900,000	---	800,000	---	ug/Kg	<b>1,100 JQ</b>	<b>430 JQ</b>	150 U	140 U	140 U
SVOCs	Fluoranthene	206-44-0	2,400,000	7,200,000	---	3,200,000	---	ug/Kg	<b>760</b>	<b>340</b>	26 U	24 U	23 U
SVOCs	Fluorene	86-73-7	2,400,000	7,200,000	---	3,200,000	---	ug/Kg	270 U	140 U	26 U	24 U	23 U
SVOCs	Hexachlorobenzene	118-74-1	210	21,000	---	64,000	630	ug/Kg	550 U	270 U	52 U	47 U	47 U
SVOCs	Hexachlorobutadiene	87-68-3	1,200	120,000	---	80,000	13,000	ug/Kg	550 U	270 U	52 U	47 U	47 U
SVOCs	Hexachlorocyclopentadiene	77-47-4	1,800	5,300	---	480,000	---	ug/Kg	1,100 U	540 U	100 U	94 U	93 U
SVOCs	Hexachloroethane	67-72-1	1,800	130,000	---	56,000	25,000	ug/Kg	1,600 U	810 U	150 U	140 U	140 U
SVOCs	Indeno[1,2,3-cd]pyrene	193-39-5	1,100	110,000	---	---	---	ug/Kg	<b>270 JQ</b>	<b>170 JQ</b>	41 U	38 U	37 U
SVOCs	Isophorone	78-59-1	570,000	38,000,000	---	16,000,000	1,100,000	ug/Kg	1,600 U	810 U	150 U	140 U	140 U
SVOCs	Naphthalene	91-20-3	3,800	380,000	5,000	1,600,000	---	ug/Kg	<b>1,400</b>	<b>340</b>	26 U	24 U	23 U
SVOCs	Nitrobenzene	98-95-3	5,100	380,000	---	160,000	---	ug/Kg	2,200 U	1,100 U	210 U	190 U	190 U
SVOCs	N-Nitrosodi-n-propylamine	621-64-7	78	7,800	---	---	140	ug/Kg	<b>R</b>	<b>R</b>	<b>R</b>	<b>R</b>	<b>R</b>

**Table C-14**  
**2019 Borehole Soil Analytical Results**  
**May Creek Landfill**  
**15753 SE Renton Issaquah Rd**  
**Renton, WA**

Group	Chemical Analysis	CAS Number	EPA RSL	EPA RML	WA MTCA Method A	WA MTCA Method B (Noncancer, Direct Contact)	WA MTCA Method B (Cancer, Direct Contact)	Date:	7/11/2019	7/11/2019	7/11/2019	7/12/2019	7/12/2019
								Sampling Depth (feet):	0 - 2	2.5 - 4.5	12.5 - 14.5	10 - 12	15 - 17
								EPA Sample Number:	19070207	19070208	19070209	19070212	19070213
								Location:	BHDSB0-2	BHDSB2.5-4.5	BHDSB12.5-14.5	BHESB10-12	BHESB15-17
								Units	Result	Result	Result	Result	Result
SVOCs	N-Nitrosodiphenylamine	86-30-6	110,000	11,000,000	---	---	200,000	ug/Kg	660 U	330 U	62 U	56 U	56 U
SVOCs	Pentachlorophenol	87-86-5	1,000	100,000	---	400,000	2,500	ug/Kg	4,900 U	2,400 U	460 U	420 U	420 U
SVOCs	Phenanthrene	85-01-8	---	---	---	---	---	ug/Kg	<b>400 JQ</b>	<b>270 JQ</b>	62 U	56 U	56 U
SVOCs	Phenol	108-95-2	19,000,000	57,000,000	---	24,000,000	---	ug/Kg	1,600 U	810 U	150 U	140 U	140 U
SVOCs	Pyrene	129-00-0	1,800,000	5,400,000	---	2,400,000	---	ug/Kg	<b>690</b>	<b>410</b>	62 U	56 U	56 U
VOCs	1,1,1,2-Tetrachloroethane	630-20-6	2,000	200,000	---	2,400,000	38,000	ug/Kg	2.8 U	3.0 U	2.6 U	2.5 UJK	2.7 UJK
VOCs	1,1,1-Trichloroethane	71-55-6	8,100,000	24,000,000	2,000	160,000,000	---	ug/Kg	1.9 U	2.0 U	1.7 U	1.7 UJK	1.8 UJK
VOCs	1,1,2,2-Tetrachloroethane	79-34-5	600	60,000	---	1,600,000	5,000	ug/Kg	3.8 U	4.0 U	3.4 U	3.3 UJK	3.5 UJK
VOCs	1,1,2-Trichloroethane	79-00-5	1,100	4,500	---	320,000	18,000	ug/Kg	1.9 U	2.0 U	1.7 U	1.7 UJK	1.8 UJK
VOCs	1,1-Dichloroethane	75-34-3	3,600	360,000	---	16,000,000	180,000	ug/Kg	0.94 U	1.0 U	0.85 U	0.83 UJK	0.89 UJK
VOCs	1,1-Dichloroethene	75-35-4	230,000	680,000	---	4,000,000	---	ug/Kg	4.7 U	5.0 U	4.3 U	4.1 UJK	4.4 UJK
VOCs	1,1-Dichloropropene	563-58-6	---	---	---	---	---	ug/Kg	1.9 U	2.0 U	1.7 U	1.7 UJK	1.8 UJK
VOCs	1,2,3-Trichlorobenzene	87-61-6	63,000	190,000	---	---	---	ug/Kg	2.8 U	3.0 U	2.6 U	2.5 UJK	2.7 UJK
VOCs	1,2,3-Trichloropropane	96-18-4	5.1	510	---	320,000	33	ug/Kg	4.7 U	5.0 U	4.3 U	4.1 UJK	4.4 UJK
VOCs	1,2,4-Trichlorobenzene	120-82-1	24,000	170,000	---	800,000	34,000	ug/Kg	1.9 U	2.0 U	1.7 U	1.7 UJK	1.8 UJK
VOCs	1,2,4-Trimethylbenzene	95-63-6	300,000	910,000	---	800,000	---	ug/Kg	<b>9,900 JL</b>	<b>8,900 JL</b>	4.3 U	4.1 UJK	4.4 UJK
VOCs	1,2-Dibromo-3-Chloropropane	96-12-8	5.3	530	---	16,000	1,300	ug/Kg	9.4 U	10 U	8.5 U	8.3 UJK	8.9 UJK
VOCs	1,2-Dibromoethane	106-93-4	36	3,600	5	720,000	500	ug/Kg	0.94 U	1.0 U	0.85 U	0.83 UJK	0.89 UJK
VOCs	1,2-Dichlorobenzene	95-50-1	1,800,000	5,400,000	---	7,200,000	---	ug/Kg	9.4 U	10 U	8.5 U	8.3 UJK	8.9 UJK
VOCs	1,2-Dichloroethane	107-06-2	460	46,000	---	480,000	11,000	ug/Kg	0.94 U	1.0 U	0.85 U	0.83 UJK	0.89 UJK
VOCs	1,2-Dichloropropane	78-87-5	2,500	47,000	---	3,200,000	27,000	ug/Kg	1.9 U	2.0 U	1.7 U	1.7 UJK	1.8 UJK
VOCs	1,3,5-Trimethylbenzene	108-67-8	270,000	810,000	---	800,000	---	ug/Kg	<b>3,600</b>	<b>3,100</b>	4.3 U	4.1 UJK	4.4 UJK
VOCs	1,3-Dichlorobenzene	541-73-1	---	---	---	---	---	ug/Kg	4.7 U	5.0 U	4.3 U	4.1 UJK	4.4 UJK
VOCs	1,3-Dichloropropane	142-28-9	1,600,000	4,700,000	---	---	---	ug/Kg	<b>4.1</b>	2.0 U	1.7 U	1.7 UJK	1.8 UJK
VOCs	1,4-Dichlorobenzene	106-46-7	2,600	260,000	---	5,600,000	190,000	ug/Kg	4.7 U	5.0 U	4.3 U	4.1 UJK	4.4 UJK
VOCs	2,2-Dichloropropane	594-20-7	---	---	---	---	---	ug/Kg	4.7 U	5.0 U	4.3 U	4.1 UJK	4.4 UJK
VOCs	2-Chlorotoluene	95-49-8	1,600,000	4,700,000	---	1,600,000	---	ug/Kg	4.7 U	5.0 U	4.3 U	4.1 UJK	4.4 UJK
VOCs	4-Chlorotoluene	106-43-4	1,600,000	4,700,000	---	---	---	ug/Kg	4.7 U	5.0 U	4.3 U	4.1 UJK	4.4 UJK
VOCs	4-Isopropyltoluene	99-87-6	---	---	---	---	---	ug/Kg	<b>3.6</b>	<b>3.5</b>	1.7 U	1.7 UJK	1.8 UJK
VOCs	Benzene	71-43-2	1,200	120,000	30	320,000	18,000	ug/Kg	<b>18</b>	<b>1.4 JQ</b>	1.7 U	1.7 UJK	1.8 UJK
VOCs	Bromobenzene	108-86-1	290,000	860,000	---	---	640,000	ug/Kg	9.4 U	10 U	8.5 U	8.3 UJK	8.9 UJK
VOCs	Bromochloromethane	74-97-5	150,000	450,000	---	---	---	ug/Kg	1.9 U	2.0 U	1.7 U	1.7 UJK	1.8 UJK
VOCs	Bromodichloromethane	75-27-4	290	29,000	---	1,600,000	16,000	ug/Kg	0.94 U	1.0 U	0.85 U	0.83 UJK	0.89 UJK
VOCs	Bromoform	75-25-2	19,000	1,900,000	---	1,600,000	130,000	ug/Kg	4.7 U	5.0 U	4.3 U	4.1 UJK	4.4 UJK
VOCs	Bromomethane	74-83-9	6,800	21,000	---	110,000	---	ug/Kg	0.94 U	1.0 U	0.85 U	0.83 UJK	0.89 UJK
VOCs	Carbon tetrachloride	56-23-5	650	65,000	---	320,000	14,000	ug/Kg	1.9 U	2.0 U	1.7 U	1.7 UJK	1.8 UJK
VOCs	Chlorobenzene	108-90-7	280,000	830,000	---	1,600,000	---	ug/Kg	1.9 U	2.0 U	1.7 U	1.7 UJK	1.8 UJK
VOCs	Chloroethane	75-00-3	14,000,000	41,000,000	---	---	---	ug/Kg	9.4 U	10 U	8.5 U	8.3 UJK	8.9 UJK
VOCs	Chloroform	67-66-3	320	32,000	---	800,000	32,000	ug/Kg	1.9 U	2.0 U	1.7 U	1.7 UJK	1.8 UJK



Table C-14  
2019 Borehole Soil Analytical Results  
May Creek Landfill  
15753 SE Renton Issaquah Rd  
Renton, WA

Group	Chemical Analysis	CAS Number	EPA RSL	EPA RML	WA MTCA Method A	WA MTCA Method B (Noncancer, Direct Contact)	WA MTCA Method B (Cancer, Direct Contact)	Date:	7/11/2019	7/11/2019	7/11/2019	7/12/2019	7/12/2019
								Sampling Depth (feet):	0 - 2	2.5 - 4.5	12.5 - 14.5	10 - 12	15 - 17
								EPA Sample Number:	19070207	19070208	19070209	19070212	19070213
								Location:	BHDSB0-2	BHDSB2.5-4.5	BHDSB12.5-14.5	BHESB10-12	BHESB15-17
								Units	Result	Result	Result	Result	Result
VOCs	Chloromethane	74-87-3	110,000	330,000	---	---	---	ug/Kg	4.7 U	5.0 U	4.3 U	4.1 UJK	4.4 UJK
VOCs	cis-1,2-Dichloroethene	156-59-2	160,000	470,000	---	160,000	---	ug/Kg	2.8 U	3.0 U	2.6 U	2.5 UJK	2.7 UJK
VOCs	cis-1,3-Dichloropropene	10061-01-5	---	---	---	---	---	ug/Kg	0.94 U	1.0 U	0.85 U	0.83 UJK	0.89 UJK
VOCs	Dibromochloromethane	124-48-1	8,300	830,000	---	1,600,000	12,000	ug/Kg	1.4 U	1.5 U	1.3 U	1.2 UJK	1.3 UJK
VOCs	Dibromomethane	74-95-3	24,000	71,000	---	800,000	---	ug/Kg	0.94 U	1.0 U	0.85 U	0.83 UJK	0.89 UJK
VOCs	Dichlorodifluoromethane	75-71-8	87,000	260,000	---	16,000,000	---	ug/Kg	1.9 U	2.0 U	1.7 U	1.7 UJK	1.8 UJK
VOCs	Ethylbenzene	100-41-4	5,800	580,000	6,000	8,000,000	---	ug/Kg	<b>93</b>	<b>21</b>	1.7 U	1.7 UJK	1.8 UJK
VOCs	Hexachlorobutadiene	87-68-3	1,200	120,000	---	80,000	13,000	ug/Kg	2.8 U	3.0 U	2.6 U	2.5 UJK	2.7 UJK
VOCs	Isopropylbenzene	98-82-8	1,900,000	5,800,000	---	8,000,000	---	ug/Kg	<b>11</b>	<b>5.6</b>	1.7 U	1.7 UJK	1.8 UJK
VOCs	Methyl tert-butyl ether	1634-04-4	47,000	4,700,000	100	---	560,000	ug/Kg	1.9 U	2.0 U	1.7 U	1.7 UJK	1.8 UJK
VOCs	Methylene Chloride	75-09-2	57,000	1,000,000	20	480,000	500,000	ug/Kg	38 U	40 U	34 U	33 UJK	<b>14 JQ</b>
VOCs	m-Xylene & p-Xylene	179601-23-1	580,000	1,700,000	9,000	16,000,000	---	ug/Kg	<b>9,500 JL</b>	<b>6,600</b>	<b>2.2 JQ</b>	8.3 UJK	8.9 UJK
VOCs	Naphthalene	91-20-3	3,800	380,000	5,000	1,600,000	---	ug/Kg	<b>43</b>	<b>46</b>	8.5 U	8.3 UJK	8.9 UJK
VOCs	n-Butylbenzene	104-51-8	3,900,000	12,000,000	---	4,000,000	---	ug/Kg	<b>100</b>	3.0 U	2.6 U	2.5 UJK	2.7 UJK
VOCs	N-Propylbenzene	103-65-1	3,800,000	11,000,000	---	8,000,000	---	ug/Kg	<b>28</b>	<b>13</b>	4.3 U	4.1 UJK	4.4 UJK
VOCs	o-Xylene	95-47-6	650,000	1,900,000	9,000	16,000,000	---	ug/Kg	<b>5,300</b>	<b>4,200</b>	<b>1.1 JQ</b>	4.1 UJK	4.4 UJK
VOCs	sec-Butylbenzene	135-98-8	7,800,000	23,000,000	---	8,000,000	---	ug/Kg	2.8 U	3.0 U	2.6 U	2.5 UJK	2.7 UJK
VOCs	Styrene	100-42-5	6,000,000	18,000,000	---	16,000,000	---	ug/Kg	2.8 U	3.0 U	2.6 U	2.5 UJK	2.7 UJK
VOCs	t-Butylbenzene	98-06-6	7,800,000	23,000,000	---	8,000,000	---	ug/Kg	2.8 U	3.0 U	2.6 U	2.5 UJK	2.7 UJK
VOCs	Tetrachloroethene	127-18-4	24,000	240,000	50	480,000	480,000	ug/Kg	1.9 U	2.0 U	1.7 U	1.7 UJK	1.8 UJK
VOCs	Toluene	108-88-3	4,900,000	15,000,000	7,000	6,400,000	---	ug/Kg	<b>1,500</b>	<b>67</b>	<b>1.8 JQ</b>	8.3 UJK	8.9 UJK
VOCs	trans-1,2-Dichloroethene	156-60-5	1,600,000	4,700,000	---	1,600,000	---	ug/Kg	1.9 U	2.0 U	1.7 U	1.7 UJK	1.8 UJK
VOCs	trans-1,3-Dichloropropene	10061-02-6	---	---	---	---	---	ug/Kg	9.4 U	10 U	8.5 U	8.3 UJK	8.9 UJK
VOCs	Trichloroethene	79-01-6	940	12,000	30	40,000	12,000	ug/Kg	1.9 U	2.0 U	1.7 U	1.7 UJK	1.8 UJK
VOCs	Trichlorofluoromethane	75-69-4	23,000,000	70,000,000	---	24,000,000	---	ug/Kg	1.9 U	2.0 U	1.7 U	1.7 UJK	1.8 UJK
VOCs	Vinyl chloride	75-01-4	59	5,900	---	240,000	670	ug/Kg	1.9 U	2.0 U	1.7 U	1.7 UJK	1.8 UJK

Table C-14 2019 Borehole Soil Analytical Results May Creek Landfill 15753 SE Renton Issaquah Rd Renton, WA												
Group	Chemical Analysis	CAS Number	EPA RSL	EPA RML	WA MTCA Method A	WA MTCA Method B (Noncancer, Direct Contact)	WA MTCA Method B (Cancer, Direct Contact)	Date:	7/12/2019	7/12/2019	7/13/2019	7/13/2019
								Sampling Depth (feet):	10 - 12	12.5 - 14.5	2.5 - 4.5	7.5 - 9.5
								EPA Sample Number:	19070210	19070211	19070214	19070215
								Location:	BHFSB10-12	BHFSF12.5-14.5	BHGSB2.5-4.5	BHGSB7.5-9.5
								Units	Result	Result	Result	Result
Dx	Diesel	STL00163	---	---	2,000	---	---	mg/Kg	65 U	77 U	21 JQ	21 JQ
Dx	Motor Oil	STL00299	---	---	2,000	---	---	mg/Kg	65 U	110	110 JK	110 JK
Gx	Gasoline	STL00228	---	---	30	---	---	mg/Kg	5.2 UJK	8.3 UJK	4.9 UJK	6.7 UJK
Metals	Aluminum	7429-90-5	77,000	230,000	---	80,000	---	mg/Kg	21,000	19,000	18,000	20,000
Metals	Antimony	7440-36-0	31	94	---	32	---	mg/Kg	0.46 JQ	0.51 JQ	0.90 JQ	0.44 JQ
Metals	Arsenic	7440-38-2	0.68	68	20	24	0.67	mg/Kg	3.7	6.6	5.4	10
Metals	Barium	7440-39-3	15,000	46,000	---	16,000	---	mg/Kg	110	110	84	99
Metals	Beryllium	7440-41-7	160	470	---	160	---	mg/Kg	0.25 JQ	0.44 JQ	0.23 JQ	0.25 JQ
Metals	Cadmium	7440-43-9	71	210	2	80	---	mg/Kg	0.93 U	1.1 U	0.77 U	0.95 U
Metals	Calcium	7440-70-2	---	---	---	---	---	mg/Kg	2,600	2,800	4,100	3,300
Metals	Chromium	7440-47-3	---	---	2,000	120,000	---	mg/Kg	24	34	28	26
Metals	Cobalt	7440-48-4	23	70	---	---	---	mg/Kg	6.4	11	7.7	6.9
Metals	Copper	7440-50-8	3,100	9,400	---	3,200	---	mg/Kg	18	17	23	19
Metals	Iron	7439-89-6	55,000	160,000	---	56,000	---	mg/Kg	15,000	14,000	18,000	23,000
Metals	Lead	7439-92-1	400	400	250	---	---	mg/Kg	3.8	8.7	17	13
Metals	Magnesium	7439-95-4	---	---	---	---	---	mg/Kg	3,100	2,300	4,700	3,800
Metals	Manganese	7439-96-5	1,800	5,500	---	3,700	---	mg/Kg	250	300	290	340
Metals	Mercury	7439-97-6	11,000	33,000	2,000	---	---	ug/Kg	39	52	53	45
Metals	Nickel	7440-02-0	1,500	4,600	---	1,600	---	mg/Kg	23	21	31	26
Metals	Potassium	7440-09-7	---	---	---	---	---	mg/Kg	610	500	660	660
Metals	Selenium	7782-49-2	390	1,200	---	400	---	mg/Kg	4.7 U	5.5 U	3.8 U	4.7 U
Metals	Silver	7440-22-4	390	1,200	---	400	---	mg/Kg	2.3 U	2.8 U	1.9 U	2.4 U
Metals	Sodium	7440-23-5	---	---	---	---	---	mg/Kg	180	140	210	170
Metals	Thallium	7440-28-0	0.78	2.3	---	0.8	---	mg/Kg	4.7 U	5.5 U	3.8 U	4.7 U
Metals	Vanadium	7440-62-2	390	1,200	---	400	---	mg/Kg	40	40	44	41
Metals	Zinc	7440-66-6	23,000	70,000	---	24,000	---	mg/Kg	29	28	47	36
PCBs	PCB-1016	12674-11-2	4,100	12,000	---	5,600	14,000	ug/Kg	25 U	29 U	22 U	25 U
PCBs	PCB-1221	11104-28-2	200	20,000	---	---	---	ug/Kg	25 U	29 U	22 U	25 U
PCBs	PCB-1232	11141-16-5	170	17,000	---	---	---	ug/Kg	25 U	29 U	22 U	25 U
PCBs	PCB-1242	53469-21-9	230	23,000	---	---	---	ug/Kg	25 U	29 U	22 U	25 U
PCBs	PCB-1248	12672-29-6	230	23,000	---	1,600	---	ug/Kg	25 U	29 U	22 U	25 U
PCBs	PCB-1254	11097-69-1	240	3,500	---	---	500	ug/Kg	25 U	29 U	15 JQ	17 JQ
PCBs	PCB-1260	11096-82-5	240	24,000	---	---	500	ug/Kg	25 U	29 U	22 U	25 U
Total PCB	Total PCB	1336-36-3	230	23,000	1,000	---	500	ug/Kg	---	---	15 JQ	17 JQ
Pesticides	4,4'-DDD	72-54-8	1,900	5,700	---	2,400	4,200	ug/kg	2.5 U	2.9 U	0.69 JQ	2.5 U
Pesticides	4,4'-DDE	72-55-9	2,000	70,000	---	24,000	2,900	ug/kg	2.5 U	0.75 JQ	0.50 JQ	2.5 U
Pesticides	4,4'-DDT	50-29-3	1,900	110,000	3,000	40,000	2,900	ug/kg	2.5 U	2.9 U	2.2 U	2.5 U
Pesticides	Aldrin	309-00-2	39	3,900	---	2,400	59	ug/kg	3.8 U	4.4 U	3.3 U	3.7 U
Pesticides	alpha-BHC	319-84-6	86	8,600	---	640,000	160	ug/kg	2.5 U	2.9 U	2.2 U	2.5 U

<p><b>Table C-14</b>  <b>2019 Borehole Soil Analytical Results</b>  <b>May Creek Landfill</b>  <b>15753 SE Renton Issaquah Rd</b>  <b>Renton, WA</b></p>												
Group	Chemical Analysis	CAS Number	EPA RSL	EPA RML	WA MTCA Method A	WA MTCA Method B (Noncancer, Direct Contact)	WA MTCA Method B (Cancer, Direct Contact)	Date:	7/12/2019	7/12/2019	7/13/2019	7/13/2019
								Sampling Depth (feet):	10 - 12	12.5 - 14.5	2.5 - 4.5	7.5 - 9.5
								EPA Sample Number:	19070210	19070211	19070214	19070215
								Location:	BHFSB10-12	BHFSF12.5-14.5	BHGSB2.5-4.5	BHGSB7.5-9.5
								Units	Result	Result	Result	Result
Pesticides	beta-BHC	319-85-7	300	30,000	---	---	560	ug/kg	6.3 U	7.3 U	5.4 U	6.2 U
Pesticides	cis-Chlordane	5103-71-9	---	---	---	---	---	ug/kg	2.5 U	2.9 U	<b>2.9 JK</b>	2.5 U
Pesticides	delta-BHC	319-86-8	---	---	---	---	---	ug/kg	3.8 U	4.4 U	3.3 U	3.7 U
Pesticides	Dieldrin	60-57-1	34	3,400	---	4,000	63	ug/kg	2.5 U	2.9 U	2.2 U	2.5 U
Pesticides	Endosulfan I	959-98-8	---	---	---	---	---	ug/kg	2.5 U	2.9 U	2.2 U	2.5 U
Pesticides	Endosulfan II	33213-65-9	---	---	---	---	---	ug/kg	2.5 U	2.9 U	2.2 U	2.5 U
Pesticides	Endosulfan sulfate	1031-07-8	380,000	1,100,000	---	480,000	---	ug/kg	2.5 U	2.9 U	2.2 U	2.5 U
Pesticides	Endrin	72-20-8	19,000	57,000	---	24,000	---	ug/kg	2.5 U	2.9 U	2.2 U	2.5 U
Pesticides	Endrin aldehyde	7421-93-4	---	---	---	---	---	ug/kg	25 U	29 U	22 U	25 U
Pesticides	Endrin ketone	53494-70-5	---	---	---	---	---	ug/kg	2.5 U	2.9 U	2.2 U	2.5 U
Pesticides	gamma-BHC (Lindane)	58-89-9	570	57,000	10	24,000	910	ug/kg	2.5 U	2.9 U	2.2 U	2.5 U
Pesticides	Heptachlor	76-44-8	130	13,000	---	40,000	220	ug/kg	3.8 U	4.4 U	3.3 U	3.7 U
Pesticides	Heptachlor epoxide	1024-57-3	70	3,100	---	1,000	110	ug/kg	3.8 U	4.4 U	3.3 U	3.7 U
Pesticides	Methoxychlor	72-43-5	320,000	950,000	---	400,000	---	ug/kg	13 U	15 U	11 U	12 U
Pesticides	Toxaphene	8001-35-2	490	17,000	---	7,200	910	ug/kg	130 U	150 U	110 U	120 U
Pesticides	trans-Chlordane	5103-74-2	---	---	---	---	---	ug/kg	3.8 U	4.4 U	<b>1.4 JQ</b>	3.7 U
SVOCs	1,2,4-Trichlorobenzene	120-82-1	24,000	170,000	---	800,000	34,000	ug/Kg	61 U	68 U	45 U	60 U
SVOCs	1,2-Dichlorobenzene	95-50-1	1,800,000	5,400,000	---	7,200,000	---	ug/Kg	61 U	68 U	45 U	60 U
SVOCs	1,3-Dichlorobenzene	541-73-1	---	---	---	---	---	ug/Kg	61 U	68 U	45 U	60 U
SVOCs	1,4-Dichlorobenzene	106-46-7	2,600	260,000	---	5,600,000	190,000	ug/Kg	61 U	68 U	45 U	60 U
SVOCs	1-Methylnaphthalene	90-12-0	18,000	1,800,000	---	5,600,000	34,000	ug/kg	37 U	41 U	27 U	36 U
SVOCs	2,4,5-Trichlorophenol	95-95-4	6,300,000	19,000,000	---	8,000,000	---	ug/Kg	240 U	270 U	180 U	240 U
SVOCs	2,4,6-Trichlorophenol	88-06-2	49,000	190,000	---	80,000	91,000	ug/Kg	180 U	200 U	140 U	180 U
SVOCs	2,4-Dichlorophenol	120-83-2	190,000	570,000	---	240,000	---	ug/Kg	120 U	140 U	90 U	120 U
SVOCs	2,4-Dimethylphenol	105-67-9	1,300,000	3,800,000	---	1,600,000	---	ug/Kg	120 U	140 U	90 U	120 U
SVOCs	2,4-Dinitrophenol	51-28-5	130,000	380,000	---	160,000	---	ug/Kg	1,200 U	1,400 U	900 U	1,200 U
SVOCs	2,4-Dinitrotoluene	121-14-2	1,700	170,000	---	160,000	3,200	ug/Kg	240 U	270 U	180 U	240 U
SVOCs	2,6-Dinitrotoluene	606-20-2	360	36,000	---	24,000	670	ug/Kg	180 U	200 U	140 U	180 U
SVOCs	2-Chloronaphthalene	91-58-7	4,800,000	14,000,000	---	6,400,000	---	ug/Kg	31 U	34 U	23 U	30 U
SVOCs	2-Chlorophenol	95-57-8	390,000	1,200,000	---	400,000	---	ug/Kg	240 U	270 U	180 U	240 U
SVOCs	2-Methylnaphthalene	91-57-6	240,000	720,000	---	320,000	---	ug/Kg	61 U	68 U	45 U	60 U
SVOCs	2-Methylphenol	95-48-7	3,200,000	9,500,000	---	4,000,000	---	ug/Kg	180 U	200 U	140 U	180 U
SVOCs	2-Nitroaniline	88-74-4	630,000	1,900,000	---	800,000	---	ug/Kg	120 U	140 U	90 U	120 U
SVOCs	2-Nitrophenol	88-75-5	---	---	---	---	---	ug/Kg	240 U	270 U	180 U	240 U
SVOCs	3 & 4 Methylphenol	15831-10-4	---	---	---	---	---	ug/kg	240 U	270 U	180 U	240 U
SVOCs	3,3'-Dichlorobenzidine	91-94-1	1,200	120,000	---	---	2,200	ug/Kg	490 U	540 U	360 U	480 U
SVOCs	3-Nitroaniline	99-09-2	---	---	---	---	---	ug/Kg	240 U	270 U	180 U	240 U
SVOCs	4,6-Dinitro-2-methylphenol	534-52-1	5,100	15,000	---	6,400	---	ug/Kg	1,200 U	1,400 U	900 U	1,200 U
SVOCs	4-Bromophenyl phenyl ether	101-55-3	---	---	---	---	---	ug/Kg	240 U	270 U	180 U	240 U

Table C-14 2019 Borehole Soil Analytical Results May Creek Landfill 15753 SE Renton Issaquah Rd Renton, WA												
Group	Chemical Analysis	CAS Number	EPA RSL	EPA RML	WA MTCA Method A	WA MTCA Method B (Noncancer, Direct Contact)	WA MTCA Method B (Cancer, Direct Contact)	Date:	7/12/2019	7/12/2019	7/13/2019	7/13/2019
								Sampling Depth (feet):	10 - 12	12.5 - 14.5	2.5 - 4.5	7.5 - 9.5
								EPA Sample Number:	19070210	19070211	19070214	19070215
								Location:	BHFSB10-12	BHFSF12.5-14.5	BHGSB2.5-4.5	BHGSB7.5-9.5
								Units	Result	Result	Result	Result
SVOCs	4-Chloro-3-methylphenol	59-50-7	6,300,000	19,000,000	---	8,000,000	---	ug/Kg	180 U	200 U	140 U	180 U
SVOCs	4-Chloroaniline	106-47-8	2,700	270,000	---	320,000	5,000	ug/Kg	1,800 U	2,000 U	1,400 U	1,800 U
SVOCs	4-Chlorophenyl phenyl ether	7005-72-3	---	---	---	---	---	ug/Kg	240 U	270 U	180 U	240 U
SVOCs	4-Nitroaniline	100-01-6	27,000	760,000	---	---	---	ug/Kg	180 U	200 U	140 U	180 U
SVOCs	4-Nitrophenol	100-02-7	---	---	---	---	---	ug/Kg	1,800 U	2,000 U	1,400 U	1,800 U
SVOCs	Acenaphthene	83-32-9	3,600,000	11,000,000	---	4,800,000	---	ug/Kg	31 U	34 U	23 U	30 U
SVOCs	Acenaphthylene	208-96-8	---	---	---	---	---	ug/Kg	31 U	34 U	23 U	30 U
SVOCs	Anthracene	120-12-7	18,000,000	54,000,000	---	24,000,000	---	ug/Kg	31 U	34 U	23 U	30 U
SVOCs	Benzo[a]anthracene	56-55-3	1,100	110,000	---	---	---	ug/Kg	31 U	34 U	23 U	30 U
SVOCs	Benzo[a]pyrene	50-32-8	110	11,000	100	24,000	190	ug/Kg	73 U	81 U	54 U	72 U
SVOCs	Benzo[b]fluoranthene	205-99-2	1,100	110,000	---	---	---	ug/Kg	31 U	34 U	23 U	30 U
SVOCs	Benzo[g,h,i]perylene	191-24-2	---	---	---	---	---	ug/Kg	73 U	81 U	54 U	72 U
SVOCs	Benzo[k]fluoranthene	207-08-9	11,000	1,100,000	---	---	---	ug/Kg	73 U	81 U	54 U	72 U
SVOCs	Benzoic acid	65-85-0	250,000,000	760,000,000	---	320,000,000	---	ug/Kg	2,400 U	2,700 U	1,800 U	2,400 U
SVOCs	Benzyl alcohol	100-51-6	6,300,000	19,000,000	---	8,000,000	---	ug/Kg	610 U	680 U	450 U	600 U
SVOCs	Bis(2-chloroethoxy)methane	111-91-1	190,000	570,000	---	---	---	ug/Kg	240 U	270 U	180 U	240 U
SVOCs	Bis(2-chloroethyl)ether	111-44-4	230	23,000	---	---	910	ug/Kg	120 U	140 U	90 U	120 U
SVOCs	Bis(2-ethylhexyl) phthalate	117-81-7	39,000	3,800,000	---	1,600,000	71,000	ug/Kg	730 U	810 U	540 U	720 U
SVOCs	bis(chloroisopropyl) ether	108-60-1	3,100,000	9,400,000	---	3,200,000	14,000	ug/Kg	240 U	270 U	180 U	240 U
SVOCs	Butyl benzyl phthalate	85-68-7	290,000	29,000,000	---	16,000,000	530,000	ug/Kg	<b>93 JQ</b>	<b>82 JQ</b>	<b>47 JQ</b>	240 U
SVOCs	Carbazole	86-74-8	---	---	---	---	---	ug/Kg	180 U	200 U	140 U	180 U
SVOCs	Chrysene	218-01-9	110,000	11,000,000	---	---	---	ug/Kg	73 U	81 U	54 U	72 U
SVOCs	Dibenz(a,h)anthracene	53-70-3	110	11,000	---	---	---	ug/Kg	61 U	68 U	45 U	60 U
SVOCs	Dibenzofuran	132-64-9	73,000	220,000	---	80,000	---	ug/Kg	180 U	200 U	140 U	180 U
SVOCs	Diethyl phthalate	84-66-2	51,000,000	150,000,000	---	64,000,000	---	ug/Kg	1,800 U	2,000 U	1,400 U	1,800 U
SVOCs	Dimethyl phthalate	131-11-3	---	---	---	---	---	ug/Kg	180 U	200 U	140 U	180 U
SVOCs	Di-n-butyl phthalate	84-74-2	6,300,000	19,000,000	---	8,000,000	---	ug/Kg	610 U	680 U	450 U	600 U
SVOCs	Di-n-octyl phthalate	117-84-0	630,000	1,900,000	---	800,000	---	ug/Kg	180 U	200 U	140 U	180 U
SVOCs	Fluoranthene	206-44-0	2,400,000	7,200,000	---	3,200,000	---	ug/Kg	31 U	<b>8.6 JQ</b>	<b>12 JQ</b>	30 U
SVOCs	Fluorene	86-73-7	2,400,000	7,200,000	---	3,200,000	---	ug/Kg	31 U	34 U	23 U	30 U
SVOCs	Hexachlorobenzene	118-74-1	210	21,000	---	64,000	630	ug/Kg	61 U	68 U	45 U	60 U
SVOCs	Hexachlorobutadiene	87-68-3	1,200	120,000	---	80,000	13,000	ug/Kg	61 U	68 U	45 U	60 U
SVOCs	Hexachlorocyclopentadiene	77-47-4	1,800	5,300	---	480,000	---	ug/Kg	120 U	140 U	90 U	120 U
SVOCs	Hexachloroethane	67-72-1	1,800	130,000	---	56,000	25,000	ug/Kg	180 U	200 U	140 U	180 U
SVOCs	Indeno[1,2,3-cd]pyrene	193-39-5	1,100	110,000	---	---	---	ug/Kg	49 U	54 U	36 U	48 U
SVOCs	Isophorone	78-59-1	570,000	38,000,000	---	16,000,000	1,100,000	ug/Kg	180 U	200 U	140 U	180 U
SVOCs	Naphthalene	91-20-3	3,800	380,000	5,000	1,600,000	---	ug/Kg	31 U	34 U	23 U	30 U
SVOCs	Nitrobenzene	98-95-3	5,100	380,000	---	160,000	---	ug/Kg	240 U	270 U	180 U	240 U
SVOCs	N-Nitrosodi-n-propylamine	621-64-7	78	7,800	---	---	140	ug/Kg	<b>R</b>	<b>R</b>	<b>R</b>	<b>R</b>



Table C-14 2019 Borehole Soil Analytical Results May Creek Landfill 15753 SE Renton Issaquah Rd Renton, WA												
Group	Chemical Analysis	CAS Number	EPA RSL	EPA RML	WA MTCA Method A	WA MTCA Method B (Noncancer, Direct Contact)	WA MTCA Method B (Cancer, Direct Contact)	Date:	7/12/2019	7/12/2019	7/13/2019	7/13/2019
								Sampling Depth (feet):	10 - 12	12.5 - 14.5	2.5 - 4.5	7.5 - 9.5
								EPA Sample Number:	19070210	19070211	19070214	19070215
								Location:	BHFSB10-12	BHFSF12.5-14.5	BHGSB2.5-4.5	BHGSB7.5-9.5
								Units	Result	Result	Result	Result
SVOCs	N-Nitrosodiphenylamine	86-30-6	110,000	11,000,000	---	---	200,000	ug/Kg	73 U	81 U	54 U	72 U
SVOCs	Pentachlorophenol	87-86-5	1,000	100,000	---	400,000	2,500	ug/Kg	550 U	610 U	410 U	540 U
SVOCs	Phenanthrene	85-01-8	---	---	---	---	---	ug/Kg	73 U	81 U	54 U	72 U
SVOCs	Phenol	108-95-2	19,000,000	57,000,000	---	24,000,000	---	ug/Kg	180 U	200 U	140 U	180 U
SVOCs	Pyrene	129-00-0	1,800,000	5,400,000	---	2,400,000	---	ug/Kg	73 U	81 U	11 JQ	72 U
VOCs	1,1,1,2-Tetrachloroethane	630-20-6	2,000	200,000	---	2,400,000	38,000	ug/Kg	2.5 UJK	3.4 UJK	2.6 UJK	2.8 UJK
VOCs	1,1,1-Trichloroethane	71-55-6	8,100,000	24,000,000	2,000	160,000,000	---	ug/Kg	1.7 UJK	2.3 UJK	1.7 UJK	1.9 UJK
VOCs	1,1,2,2-Tetrachloroethane	79-34-5	600	60,000	---	1,600,000	5,000	ug/Kg	3.4 UJK	4.5 UJK	3.4 UJK	3.8 UJK
VOCs	1,1,2-Trichloroethane	79-00-5	1,100	4,500	---	320,000	18,000	ug/Kg	1.7 UJK	2.3 UJK	1.7 UJK	1.9 UJK
VOCs	1,1-Dichloroethane	75-34-3	3,600	360,000	---	16,000,000	180,000	ug/Kg	0.84 UJK	1.1 UJK	0.85 UJK	0.94 UJK
VOCs	1,1-Dichloroethene	75-35-4	230,000	680,000	---	4,000,000	---	ug/Kg	4.2 UJK	5.7 UJK	4.3 UJK	4.7 UJK
VOCs	1,1-Dichloropropene	563-58-6	---	---	---	---	---	ug/Kg	1.7 UJK	2.3 UJK	1.7 UJK	1.9 UJK
VOCs	1,2,3-Trichlorobenzene	87-61-6	63,000	190,000	---	---	---	ug/Kg	2.5 UJK	3.4 UJK	2.6 UJK	2.8 UJK
VOCs	1,2,3-Trichloropropane	96-18-4	5.1	510	---	320,000	33	ug/Kg	4.2 UJK	5.7 UJK	4.3 UJK	4.7 UJK
VOCs	1,2,4-Trichlorobenzene	120-82-1	24,000	170,000	---	800,000	34,000	ug/Kg	1.7 UJK	2.3 UJK	1.7 UJK	1.9 UJK
VOCs	1,2,4-Trimethylbenzene	95-63-6	300,000	910,000	---	800,000	---	ug/Kg	4.2 UJK	5.7 UJK	4.3 UJK	4.7 UJK
VOCs	1,2-Dibromo-3-Chloropropane	96-12-8	5.3	530	---	16,000	1,300	ug/Kg	8.4 UJK	11 UJK	8.5 UJK	9.4 UJK
VOCs	1,2-Dibromoethane	106-93-4	36	3,600	5	720,000	500	ug/Kg	0.84 UJK	1.1 UJK	0.85 UJK	0.94 UJK
VOCs	1,2-Dichlorobenzene	95-50-1	1,800,000	5,400,000	---	7,200,000	---	ug/Kg	8.4 UJK	11 UJK	8.5 UJK	9.4 UJK
VOCs	1,2-Dichloroethane	107-06-2	460	46,000	---	480,000	11,000	ug/Kg	0.84 UJK	1.1 UJK	0.85 UJK	0.94 UJK
VOCs	1,2-Dichloropropane	78-87-5	2,500	47,000	---	3,200,000	27,000	ug/Kg	1.7 UJK	2.3 UJK	1.7 UJK	1.9 UJK
VOCs	1,3,5-Trimethylbenzene	108-67-8	270,000	810,000	---	800,000	---	ug/Kg	4.2 UJK	5.7 UJK	4.3 UJK	4.7 UJK
VOCs	1,3-Dichlorobenzene	541-73-1	---	---	---	---	---	ug/Kg	4.2 UJK	5.7 UJK	4.3 UJK	4.7 UJK
VOCs	1,3-Dichloropropane	142-28-9	1,600,000	4,700,000	---	---	---	ug/Kg	1.7 UJK	2.3 UJK	1.7 UJK	1.9 UJK
VOCs	1,4-Dichlorobenzene	106-46-7	2,600	260,000	---	5,600,000	190,000	ug/Kg	4.2 UJK	5.7 UJK	4.3 UJK	4.7 UJK
VOCs	2,2-Dichloropropane	594-20-7	---	---	---	---	---	ug/Kg	4.2 UJK	5.7 UJK	4.3 UJK	4.7 UJK
VOCs	2-Chlorotoluene	95-49-8	1,600,000	4,700,000	---	1,600,000	---	ug/Kg	4.2 UJK	5.7 UJK	4.3 UJK	4.7 UJK
VOCs	4-Chlorotoluene	106-43-4	1,600,000	4,700,000	---	---	---	ug/Kg	4.2 UJK	5.7 UJK	4.3 UJK	4.7 UJK
VOCs	4-Isopropyltoluene	99-87-6	---	---	---	---	---	ug/Kg	1.7 UJK	2.3 UJK	1.7 UJK	1.9 UJK
VOCs	Benzene	71-43-2	1,200	120,000	30	320,000	18,000	ug/Kg	1.7 UJK	2.3 UJK	1.7 UJK	1.9 UJK
VOCs	Bromobenzene	108-86-1	290,000	860,000	---	---	640,000	ug/Kg	8.4 UJK	11 UJK	8.5 UJK	9.4 UJK
VOCs	Bromochloromethane	74-97-5	150,000	450,000	---	---	---	ug/Kg	1.7 UJK	2.3 UJK	1.7 UJK	1.9 UJK
VOCs	Bromodichloromethane	75-27-4	290	29,000	---	1,600,000	16,000	ug/Kg	0.84 UJK	1.1 UJK	0.85 UJK	0.94 UJK
VOCs	Bromoform	75-25-2	19,000	1,900,000	---	1,600,000	130,000	ug/Kg	4.2 UJK	5.7 UJK	4.3 UJK	4.7 UJK
VOCs	Bromomethane	74-83-9	6,800	21,000	---	110,000	---	ug/Kg	0.84 UJK	1.1 UJK	0.85 UJK	0.94 UJK
VOCs	Carbon tetrachloride	56-23-5	650	65,000	---	320,000	14,000	ug/Kg	1.7 UJK	2.3 UJK	1.7 UJK	1.9 UJK
VOCs	Chlorobenzene	108-90-7	280,000	830,000	---	1,600,000	---	ug/Kg	1.7 UJK	2.3 UJK	1.7 UJK	1.9 UJK
VOCs	Chloroethane	75-00-3	14,000,000	41,000,000	---	---	---	ug/Kg	8.4 UJK	11 UJK	8.5 UJK	9.4 UJK
VOCs	Chloroform	67-66-3	320	32,000	---	800,000	32,000	ug/Kg	1.7 UJK	2.3 UJK	1.7 UJK	1.9 UJK

<p><b>Table C-14</b>  <b>2019 Borehole Soil Analytical Results</b>  <b>May Creek Landfill</b>  <b>15753 SE Renton Issaquah Rd</b>  <b>Renton, WA</b></p>												
Group	Chemical Analysis	CAS Number	EPA RSL	EPA RML	WA MTCA Method A	WA MTCA Method B (Noncancer, Direct Contact)	WA MTCA Method B (Cancer, Direct Contact)	Date:	7/12/2019	7/12/2019	7/13/2019	7/13/2019
								Sampling Depth (feet):	10 - 12	12.5 - 14.5	2.5 - 4.5	7.5 - 9.5
								EPA Sample Number:	19070210	19070211	19070214	19070215
								Location:	BHFSB10-12	BHFSF12.5-14.5	BHGSB2.5-4.5	BHGSB7.5-9.5
								Units	Result	Result	Result	Result
VOCs	Chloromethane	74-87-3	110,000	330,000	---	---	---	ug/Kg	4.2 UJK	5.7 UJK	4.3 UJK	4.7 UJK
VOCs	cis-1,2-Dichloroethene	156-59-2	160,000	470,000	---	160,000	---	ug/Kg	2.5 UJK	3.4 UJK	2.6 UJK	2.8 UJK
VOCs	cis-1,3-Dichloropropene	10061-01-5	---	---	---	---	---	ug/Kg	0.84 UJK	1.1 UJK	0.85 UJK	0.94 UJK
VOCs	Dibromochloromethane	124-48-1	8,300	830,000	---	1,600,000	12,000	ug/Kg	1.3 UJK	1.7 UJK	1.3 UJK	1.4 UJK
VOCs	Dibromomethane	74-95-3	24,000	71,000	---	800,000	---	ug/Kg	0.84 UJK	1.1 UJK	0.85 UJK	0.94 UJK
VOCs	Dichlorodifluoromethane	75-71-8	87,000	260,000	---	16,000,000	---	ug/Kg	1.7 UJK	2.3 UJK	1.7 UJK	1.9 UJK
VOCs	Ethylbenzene	100-41-4	5,800	580,000	6,000	8,000,000	---	ug/Kg	1.7 UJK	2.3 UJK	1.7 UJK	1.9 UJK
VOCs	Hexachlorobutadiene	87-68-3	1,200	120,000	---	80,000	13,000	ug/Kg	2.5 UJK	3.4 UJK	2.6 UJK	2.8 UJK
VOCs	Isopropylbenzene	98-82-8	1,900,000	5,800,000	---	8,000,000	---	ug/Kg	1.7 UJK	2.3 UJK	1.7 UJK	1.9 UJK
VOCs	Methyl tert-butyl ether	1634-04-4	47,000	4,700,000	100	---	560,000	ug/Kg	1.7 UJK	2.3 UJK	1.7 UJK	1.9 UJK
VOCs	Methylene Chloride	75-09-2	57,000	1,000,000	20	480,000	500,000	ug/Kg	34 UJK	45 UJK	<b>13 JQ</b>	38 UJK
VOCs	m-Xylene & p-Xylene	179601-23-1	580,000	1,700,000	9,000	16,000,000	---	ug/Kg	8.4 UJK	11 UJK	8.5 UJK	9.4 UJK
VOCs	Naphthalene	91-20-3	3,800	380,000	5,000	1,600,000	---	ug/Kg	8.4 UJK	11 UJK	8.5 UJK	9.4 UJK
VOCs	n-Butylbenzene	104-51-8	3,900,000	12,000,000	---	4,000,000	---	ug/Kg	2.5 UJK	3.4 UJK	2.6 UJK	2.8 UJK
VOCs	N-Propylbenzene	103-65-1	3,800,000	11,000,000	---	8,000,000	---	ug/Kg	4.2 UJK	5.7 UJK	4.3 UJK	4.7 UJK
VOCs	o-Xylene	95-47-6	650,000	1,900,000	9,000	16,000,000	---	ug/Kg	4.2 UJK	5.7 UJK	4.3 UJK	4.7 UJK
VOCs	sec-Butylbenzene	135-98-8	7,800,000	23,000,000	---	8,000,000	---	ug/Kg	2.5 UJK	3.4 UJK	2.6 UJK	2.8 UJK
VOCs	Styrene	100-42-5	6,000,000	18,000,000	---	16,000,000	---	ug/Kg	2.5 UJK	3.4 UJK	2.6 UJK	2.8 UJK
VOCs	t-Butylbenzene	98-06-6	7,800,000	23,000,000	---	8,000,000	---	ug/Kg	2.5 UJK	3.4 UJK	2.6 UJK	2.8 UJK
VOCs	Tetrachloroethene	127-18-4	24,000	240,000	50	480,000	480,000	ug/Kg	1.7 UJK	2.3 UJK	1.7 UJK	1.9 UJK
VOCs	Toluene	108-88-3	4,900,000	15,000,000	7,000	6,400,000	---	ug/Kg	8.4 UJK	11 UJK	8.5 UJK	9.4 UJK
VOCs	trans-1,2-Dichloroethene	156-60-5	1,600,000	4,700,000	---	1,600,000	---	ug/Kg	1.7 UJK	2.3 UJK	1.7 UJK	1.9 UJK
VOCs	trans-1,3-Dichloropropene	10061-02-6	---	---	---	---	---	ug/Kg	8.4 UJK	11 UJK	8.5 UJK	9.4 UJK
VOCs	Trichloroethene	79-01-6	940	12,000	30	40,000	12,000	ug/Kg	1.7 UJK	2.3 UJK	1.7 UJK	1.9 UJK
VOCs	Trichlorofluoromethane	75-69-4	23,000,000	70,000,000	---	24,000,000	---	ug/Kg	1.7 UJK	2.3 UJK	1.7 UJK	1.9 UJK
VOCs	Vinyl chloride	75-01-4	59	5,900	---	240,000	670	ug/Kg	1.7 UJK	2.3 UJK	1.7 UJK	1.9 UJK

Notes:

- 1,180** = Yellow highlighting indicates result that exceeds listed screening levels.
- 1,180** = Bold text indicates a detected result.
- = Not Applicable
- CAS = Chemical Abstracts Service
- Dx = Northwest Total Petroleum Hydrocarbons - Extended Diesel Range (Semi-volatile Petroleum Products)
- EPA RML = Environmental Protection Agency (EPA) Removal Management Levels (RML), 40 CFR Part 300, November 2019
- EPA RSL = Environmental Protection Agency (EPA) Regional Screening Levels (RSL), 40 CFR Part 300, November 2019
- Gx = Northwest Total Petroleum Hydrocarbons - Extended Gasoline Range (Volatile Petroleum Products)
- H = The sample result is biased high.
- J = The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
- K = The bias of the sample is not known.
- L = The sample result is biased low.
- mg/Kg = milligrams per kilogram
- Pesticides = Organochlorine Pesticides, EPA Method 8081B by GC/ECD
- PCBs = Polychlorinated Biphenyls (PCBs), EPA Method 8082A by GC/ECD
- Q = Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.
- SVOCs = Semi-Volatile Organic Compounds, EPA Method 8270D by GC/MS
- Metals = Target Analyte List Metals, EPA Method 6010C (ICP-AES) and 7471 (CVAA)
- U = The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- ug/Kg = micrograms per kilogram
- VOCs = Volatile Organic Compounds, EPA Method 8260C by GC/MS
- WA MTCA Method A = Washington State (WA) Model Toxics Control Act (MTCA) Cleanup Regulation Method A (unrestricted land use) value from the Cleanup and Risk Calculations tables (CLARC), chapter 173-340 WAC, August 2015
- WA MTCA Method B = Washington State (WA) Model Toxics Control Act (MTCA) Cleanup Regulation Method B (unrestricted land use) value from the Cleanup and Risk Calculations tables (CLARC), chapter 173-340 WAC, August 2015

<div>Table C-15</div> <div>2019 Groundwater Analytical Results</div> <div>May Creek Landfill</div> <div>15753 SE Renton Issaquah Rd</div> <div>Renton, WA</div>																
Group	Chemical Analysis	CAS Number	EPA MCL	EPA RSL Tap Water	WA MTCA Method A	WA MTCA Method B (Noncancer, Direct Contact)	WA MTCA Method B (Cancer, Direct Contact)	Date:	7/23/2019	7/23/2019	7/23/2019	7/24/2019	7/23/2019	7/23/2019	7/23/2019	7/24/2019
								EPA Sample Number:	19070401	19070402	19070403	19070407	19070404	19070405	19070406	19070408
								Location:	MW-01	MW-02	Field Duplicate of MW-02	MW-03	MW-04	MW-05	MW-06	MW-07
								Units	Result	Result	Result	Result	Result	Result	Result	Result
Dx	Diesel	STL00163	---	---	500	---	---	ug/L	100 U	160 JH	130 JH	110 JH	110 JH	160 JH	250 JH	1,000 JH
Dx	Motor Oil	STL00299	---	---	500	---	---	ug/L	130 JQ	580	310 JQ	140 JQ	310 JQ	470	770	1,900
Gx	Gasoline	STL00228	---	---	800	---	---	ug/L	250 UJL	250 U	250 U	250 U	250 U	250 U	250 U	250 U
Metals	Aluminum	7429-90-5	---	20,000	---	16,000	---	ug/L	1,500 U	1,500 U	1,500 U	7,000	1,500 U	1,500 U	1,500 U	1,500 U
Metals	Antimony	7440-36-0	6	7.8	---	6.4	---	ug/L	0.400 U	0.400 U	0.400 U	0.920	0.400 U	0.400 U	0.460	0.860
Metals	Arsenic	7440-38-2	10	0.052	5	4.8	0.058	ug/L	0.370 JQ	2	1.9	2.8	0.610 JQ	3.4	0.980 JQ	1.5
Metals	Barium	7440-39-3	2,000	3,800	---	3,200	---	ug/L	6.6	140	130	67	29	160	46	73
Metals	Beryllium	7440-41-7	4	25	---	32	---	ug/L	0.400 U	0.400 U	0.400 U	0.270 JQ	0.072 JQ	0.400 U	0.400 U	0.400 U
Metals	Cadmium	7440-43-9	5	9.2	5	8	---	ug/L	0.400 U	0.400 U	0.400 U	0.400 U	0.400 U	0.400 U	0.400 U	0.400 U
Metals	Calcium	7440-70-2	---	---	---	---	---	ug/L	10,000	67,000	64,000	58,000	41,000	41,000	78,000	140,000
Metals	Chromium	7440-47-3	100	---	50	---	---	ug/L	1.2	1.5	1.3	15	0.500	1.5	0.550	0.610
Metals	Cobalt	7440-48-4	---	6	---	---	---	ug/L	0.350 JQ	1.7	2.6	3.4	2	8.2	1.1	12
Metals	Copper	7440-50-8	1,300	800	---	640	---	ug/L	0.900 JQ	0.790 JQ	1.2 JQ	13	1.1 JQ	2 U	3.5	11
Metals	Iron	7439-89-6	---	14,000	---	11,000	---	ug/L	500 U	43,000	35,000	10,000	500 U	35,000	500 U	500 U
Metals	Lead	7439-92-1	15	15	15	---	---	ug/L	0.200 JQ	0.800 U	0.800 U	2.5	0.800 U	0.800 U	0.800 U	0.800 U
Metals	Magnesium	7439-95-4	---	---	---	---	---	ug/L	3,600	14,000	14,000	31,000	10,000	13,000	33,000	53,000
Metals	Manganese	7439-96-5	---	430	---	750	---	ug/L	48	7,300	6,900	470	280	4,700	550	6,500
Metals	Mercury	7439-97-6	2	0.63	2	---	---	ug/L	0.300 U	0.300 U	0.300 U	0.300 U	0.300 U	0.300 U	0.300 U	0.300 U
Metals	Nickel	7440-02-0	---	390	---	320	---	ug/L	1.4 JQ	1.3 JQ	1.7 JQ	13	6.3	2.5 JQ	23	33
Metals	Potassium	7440-09-7	---	---	---	---	---	ug/L	880 JQ	11,000	10,000	6,400	2,100 JQ	16,000	2,900 JQ	5,800
Metals	Selenium	7782-49-2	50	100	---	80	---	ug/L	8 U	8 U	8 U	8 U	8 U	8 U	8 U	8 U
Metals	Silver	7440-22-4	---	94	---	80	---	ug/L	0.400 U	0.400 U	0.400 U	0.400 U	0.400 U	0.400 U	0.400 U	0.400 U
Metals	Sodium	7440-23-5	---	---	---	---	---	ug/L	7,000	14,000	13,000	24,000	23,000	15,000	22,000	41,000
Metals	Thallium	7440-28-0	2	0.2	---	0.16	---	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Metals	Vanadium	7440-62-2	---	86	---	80	---	ug/L	1.4 JQ	3.9 JQ	3.4 JQ	16	1.7 JQ	3.4 JQ	2.5 JQ	3.9 JQ
Metals	Zinc	7440-66-6	---	6,000	---	4,800	---	ug/L	2.2 JQ	25	16	26	15	7.9	6.1 JQ	16
PCBs	PCB-1016	12674-11-2	---	0.22	---	1.1	1.3	ug/L	0.430 U	0.470 U	0.470 U	0.650 U	0.440 U	0.440 U	0.430 U	0.470 U
PCBs	PCB-1221	11104-28-2	---	0.0047	---	---	---	ug/L	0.430 U	0.470 U	0.470 U	0.650 U	0.440 U	0.440 U	0.430 U	0.470 U
PCBs	PCB-1232	11141-16-5	---	0.0047	---	---	---	ug/L	0.430 U	0.470 U	0.470 U	0.650 U	0.440 U	0.440 U	0.430 U	0.470 U
PCBs	PCB-1242	53469-21-9	---	0.0078	---	---	---	ug/L	0.430 U	0.470 U	0.470 U	0.650 U	0.440 U	0.440 U	0.430 U	0.470 U
PCBs	PCB-1248	12672-29-6	---	0.0078	---	---	---	ug/L	0.430 U	0.470 U	0.470 U	0.650 U	0.440 U	0.440 U	0.430 U	0.470 U
PCBs	PCB-1254	11097-69-1	---	0.0078	---	0.32	0.044	ug/L	0.430 U	0.470 U	0.470 U	0.650 U	0.440 U	0.440 U	0.430 U	0.470 U
PCBs	PCB-1260	11096-82-5	---	0.0078	---	---	0.044	ug/L	0.430 U	0.470 U	0.470 U	0.650 U	0.440 U	0.440 U	0.430 U	0.470 U
Pesticides	4,4'-DDD	72-54-8	---	0.032	---	0.48	0.36	ug/L	0.014 U	0.016 U	0.016 U	0.022 U	0.015 U	0.015 U	0.014 U	0.016 U
Pesticides	4,4'-DDE	72-55-9	---	0.046	---	4.8	0.26	ug/L	0.0095 U	0.010 U	0.010 U	0.015 U	0.0097 U	0.0098 U	0.0095 U	0.010 U
Pesticides	4,4'-DDT	50-29-3	---	0.23	0.3	8	0.26	ug/L	0.019 U	0.021 U	0.021 U	0.029 U	0.019 U	0.020 U	0.019 U	0.021 U
Pesticides	Aldrin	309-00-2	---	0.00092	---	0.24	0.0026	ug/L	0.023 U	0.025 U	0.025 U	0.035 U	0.023 U	0.024 U	0.023 U	0.025 U
Pesticides	alpha-BHC	319-84-6	---	0.0072	---	130	0.014	ug/L	0.017 U	0.019 U	0.019 U	0.026 U	0.018 U	0.018 U	0.017 U	0.019 U
Pesticides	beta-BHC	319-85-7	---	0.025	---	---	0.049	ug/L	0.020 U	0.022 U	0.022 U	0.030 U	0.020 U	0.021 U	0.020 U	0.022 U



<p>Table C-15</p> <p>2019 Groundwater Analytical Results</p> <p>May Creek Landfill</p> <p>15753 SE Renton Issaquah Rd</p> <p>Renton, WA</p>																
Group	Chemical Analysis	CAS Number	EPA MCL	EPA RSL Tap Water	WA MTCA Method A	WA MTCA Method B (Noncancer, Direct Contact)	WA MTCA Method B (Cancer, Direct Contact)	Date:	7/23/2019	7/23/2019	7/23/2019	7/24/2019	7/23/2019	7/23/2019	7/23/2019	7/24/2019
								EPA Sample Number:	19070401	19070402	19070403	19070407	19070404	19070405	19070406	19070408
								Location:	MW-01	MW-02	Field Duplicate of MW-02	MW-03	MW-04	MW-05	MW-06	MW-07
								Units	Result	Result	Result	Result	Result	Result	Result	Result
Pesticides	cis-Chlordane	5103-71-9	---	---	---	---	---	ug/L	0.026 U	0.028 U	0.028 U	0.039 U	0.026 U	0.026 U	0.026 U	0.028 U
Pesticides	delta-BHC	319-86-8	---	---	---	---	---	ug/L	0.014 U	0.016 U	0.016 U	0.022 U	0.015 U	0.015 U	0.014 U	0.016 U
Pesticides	Dieldrin	60-57-1	---	0.0018	---	0.8	0.0055	ug/L	0.017 U	0.019 U	0.019 U	0.026 U	0.018 U	0.018 U	0.017 U	0.019 U
Pesticides	Endosulfan I	959-98-8	---	---	---	---	---	ug/L	<b>0.130</b>	<b>0.017 JQ</b>	0.021 U	0.029 U	<b>0.014 JQ</b>	<b>0.0084 JQ</b>	0.019 U	0.021 U
Pesticides	Endosulfan II	33213-65-9	---	---	---	---	---	ug/L	0.023 U	0.025 U	0.025 U	0.035 U	0.023 U	0.024 U	0.023 U	0.025 U
Pesticides	Endosulfan sulfate	1031-07-8	---	110	---	96	---	ug/L	0.019 U	0.021 U	0.021 U	0.029 U	0.019 U	0.020 U	0.019 U	0.021 U
Pesticides	Endrin	72-20-8	2	2.3	---	4.8	---	ug/L	0.011 U	0.012 U	0.012 U	0.017 U	0.012 U	0.012 U	0.011 U	0.012 U
Pesticides	Endrin aldehyde	7421-93-4	---	---	---	---	---	ug/L	0.057 U	0.062 U	0.062 U	0.087 U	0.058 U	0.059 U	0.057 U	0.062 U
Pesticides	Endrin ketone	53494-70-5	---	---	---	---	---	ug/L	0.019 U	0.021 U	0.021 U	0.029 U	0.019 U	0.020 U	0.019 U	0.021 U
Pesticides	gamma-BHC (Lindane)	58-89-9	0.2	0.042	0.2	4.8	0.08	ug/L	0.019 U	0.021 U	0.021 U	0.029 U	0.019 U	0.020 U	0.019 U	0.021 U
Pesticides	Heptachlor	76-44-8	0.4	0.0014	---	8	0.019	ug/L	0.014 U	0.016 U	0.016 U	0.022 U	0.015 U	0.015 U	0.014 U	0.016 U
Pesticides	Heptachlor epoxide	1024-57-3	0.2	0.0014	---	0.1	0.0048	ug/L	0.019 U	0.021 U	0.021 U	0.029 U	0.019 U	0.020 U	0.019 U	0.021 U
Pesticides	Methoxychlor	72-43-5	40	37	---	80	---	ug/L	0.095 U	0.100 U	0.100 U	0.150 U	0.097 U	0.098 U	0.095 U	0.100 U
Pesticides	Toxaphene	8001-35-2	3	0.071	---	1.4	0.08	ug/L	1.9 U	2.1 U	2.1 U	2.9 U	1.9 U	2.0 U	1.9 U	2.1 U
Pesticides	trans-Chlordane	5103-74-2	---	---	---	---	---	ug/L	0.019 U	0.021 U	0.021 U	0.029 U	0.019 U	0.020 U	0.019 U	0.021 U
SVOCs	1,2,4-Trichlorobenzene	120-82-1	70	1.2	---	80	1.5	ug/L	0.380 U	0.410 U	0.410 U	<b>0.042 JQ</b>	0.380 U	0.380 U	0.380 U	0.430 U
SVOCs	1,2-Dichlorobenzene	95-50-1	600	300	---	720	---	ug/L	0.570 U	0.620 U	0.620 U	0.570 U	0.570 U	0.580 U	0.570 U	0.640 U
SVOCs	1,3-Dichlorobenzene	541-73-1	---	---	---	---	---	ug/L	0.380 U	0.410 U	0.410 U	0.380 U	0.380 U	0.380 U	0.380 U	0.430 U
SVOCs	1,4-Dichlorobenzene	106-46-7	75	0.48	---	560	8.1	ug/L	0.380 U	0.410 U	0.410 U	0.380 U	0.380 U	0.380 U	0.380 U	0.430 U
SVOCs	1-Methylnaphthalene	90-12-0	---	1.1	---	560	1.5	ug/L	0.960 U	1 U	1 U	0.950 U	0.950 U	0.960 U	0.950 U	1.1 U
SVOCs	2,4,5-Trichlorophenol	95-95-4	---	1,200	---	800	---	ug/L	0.380 U	0.410 U	0.410 U	0.380 U	0.380 U	0.380 U	0.380 U	0.430 U
SVOCs	2,4,6-Trichlorophenol	88-06-2	---	4.1	---	8	4	ug/L	0.570 U	0.620 U	0.620 U	0.570 U	0.570 U	0.580 U	0.570 U	0.640 U
SVOCs	2,4-Dichlorophenol	120-83-2	---	46	---	24	---	ug/L	3.8 U	4.1 U	4.1 U	3.8 U	3.8 U	3.8 U	3.8 U	4.3 U
SVOCs	2,4-Dimethylphenol	105-67-9	---	360	---	160	---	ug/L	3.8 U	4.1 U	4.1 U	3.8 U	3.8 U	3.8 U	3.8 U	4.3 U
SVOCs	2,4-Dinitrophenol	51-28-5	---	39	---	32	---	ug/L	19 U	21 U	21 U	19 U	19 U	19 U	19 U	21 U
SVOCs	2,4-Dinitrotoluene	121-14-2	---	0.24	---	32	0.28	ug/L	0.960 U	1 U	1 U	0.950 U	0.950 U	0.960 U	0.950 U	1.1 U
SVOCs	2,6-Dinitrotoluene	606-20-2	---	0.049	---	4.8	0.058	ug/L	0.570 U	0.620 U	0.620 U	<b>0.160 JQ</b>	<b>0.120 JQ</b>	0.580 U	0.570 U	<b>0.180 JQ</b>
SVOCs	2-Chloronaphthalene	91-58-7	---	750	---	640	---	ug/L	0.960 U	1 U	1 U	0.950 U	0.950 U	0.960 U	0.950 U	1.1 U
SVOCs	2-Chlorophenol	95-57-8	---	91	---	40	---	ug/L	0.570 U	0.620 U	0.620 U	0.570 U	0.570 U	0.580 U	0.570 U	0.640 U
SVOCs	2-Methylnaphthalene	91-57-6	---	36	---	32	---	ug/L	0.380 U	0.410 U	0.410 U	0.380 U	0.380 U	0.380 U	0.380 U	0.430 U
SVOCs	2-Methylphenol	95-48-7	---	930	---	400	---	ug/L	0.570 U	0.620 U	0.620 U	0.570 U	0.570 U	0.580 U	0.570 U	0.640 U
SVOCs	2-Nitroaniline	88-74-4	---	190	---	160	---	ug/L	0.570 U	0.620 U	0.620 U	0.570 U	0.570 U	0.580 U	0.570 U	0.640 U
SVOCs	2-Nitrophenol	88-75-5	---	---	---	---	---	ug/L	0.960 U	1 U	1 U	0.950 U	0.950 U	0.960 U	0.950 U	1.1 U
SVOCs	3 & 4 Methylphenol	15831-10-4	---	---	---	---	---	ug/L	0.770 U	0.820 U	0.830 U	0.760 U	0.760 U	0.770 U	0.760 U	0.850 U
SVOCs	3,3'-Dichlorobenzidine	91-94-1	---	0.13	---	---	0.19	ug/L	14 U	15 U	16 U	14 U	14 U	14 U	14 U	16 U
SVOCs	3-Nitroaniline	99-09-2	---	---	---	---	---	ug/L	2.9 U	3 U	3.1 U	2.8 U	2.9 U	2.9 U	2.8 U	<b>0.270 JQ</b>
SVOCs	4,6-Dinitro-2-methylphenol	534-52-1	---	1.5	---	1.3	---	ug/L	9.6 U	10 U	10 U	9.5 U	9.5 U	9.6 U	9.5 U	11 U
SVOCs	4-Bromophenyl phenyl ether	101-55-3	---	---	---	---	---	ug/L	0.570 U	0.620 U	0.620 U	0.570 U	0.570 U	0.580 U	0.570 U	0.640 U
SVOCs	4-Chloro-3-methylphenol	59-50-7	---	1,400	---	1,600	---	ug/L	0.570 U	0.620 U	0.620 U	0.570 U	0.570 U	0.580 U	0.570 U	0.640 U

<p><b>Table C-15</b>  <b>2019 Groundwater Analytical Results</b>  <b>May Creek Landfill</b>  <b>15753 SE Renton Issaquah Rd</b>  <b>Renton, WA</b></p>																
Group	Chemical Analysis	CAS Number	EPA MCL	EPA RSL Tap Water	WA MTCA Method A	WA MTCA Method B (Noncancer, Direct Contact)	WA MTCA Method B (Cancer, Direct Contact)	Date:	7/23/2019	7/23/2019	7/23/2019	7/24/2019	7/23/2019	7/23/2019	7/23/2019	7/24/2019
								EPA Sample Number:	19070401	19070402	19070403	19070407	19070404	19070405	19070406	19070408
								Location:	MW-01	MW-02	Field Duplicate of MW-02	MW-03	MW-04	MW-05	MW-06	MW-07
								Units	Result	Result	Result	Result	Result	Result	Result	Result
SVOCs	4-Chloroaniline	106-47-8	---	0.37	---	32	0.22	ug/L	9.6 U	10 U	10 U	9.5 U	9.5 U	9.6 U	9.5 U	11 U
SVOCs	4-Chlorophenyl phenyl ether	7005-72-3	---	---	---	---	---	ug/L	0.570 U	0.620 U	0.620 U	0.570 U	0.570 U	0.580 U	0.570 U	0.640 U
SVOCs	4-Nitroaniline	100-01-6	---	3.8	---	64	---	ug/L	1.9 U	2.1 U	2.1 U	1.9 U	1.9 U	1.9 U	1.9 U	2.1 U
SVOCs	4-Nitrophenol	100-02-7	---	---	---	---	---	ug/L	14 U	15 U	16 U	14 U	14 U	14 U	14 U	16 U
SVOCs	Acenaphthene	83-32-9	---	530	---	960	---	ug/L	0.380 U	0.410 U	0.410 U	0.380 U	0.380 U	0.380 U	0.380 U	0.430 U
SVOCs	Acenaphthylene	208-96-8	---	---	---	---	---	ug/L	0.960 U	1 U	1 U	0.950 U	0.950 U	0.960 U	0.950 U	1.1 U
SVOCs	Anthracene	120-12-7	---	1,800	---	4,800	---	ug/L	14 U	15 U	16 U	14 U	14 U	14 U	14 U	16 U
SVOCs	Benzo[a]anthracene	56-55-3	---	0.03	---	---	---	ug/L	0.960 U	1 U	1 U	0.950 U	0.950 U	0.960 U	0.950 U	1.1 U
SVOCs	Benzo[a]pyrene	50-32-8	0.2	0.025	0.1	4.8	0.023	ug/L	0.960 U	1 U	1 U	0.950 U	0.950 U	0.960 U	0.950 U	1.1 U
SVOCs	Benzo[b]fluoranthene	205-99-2	---	0.25	---	---	---	ug/L	0.960 U	1 U	1 U	0.950 U	0.950 U	0.960 U	0.950 U	1.1 U
SVOCs	Benzo[g,h,i]perylene	191-24-2	---	---	---	---	---	ug/L	0.960 U	1 U	1 U	0.950 U	0.950 U	0.960 U	0.950 U	1.1 U
SVOCs	Benzo[k]fluoranthene	207-08-9	---	2.5	---	---	---	ug/L	0.960 U	1 U	1 U	0.950 U	0.950 U	0.960 U	0.950 U	1.1 U
SVOCs	Benzoic acid	65-85-0	---	75,000	---	64,000	---	ug/L	3.8 U	<b>1 JQ</b>	<b>1 JQ</b>	3.8 U	<b>1.1 JQ</b>	<b>1.1 JQ</b>	<b>0.930 JQ</b>	<b>1.9 JQ</b>
SVOCs	Benzyl alcohol	100-51-6	---	2,000	---	800	---	ug/L	2.9 U	3.1 U	3.1 U	2.8 U	2.9 U	2.9 U	2.8 U	3.2 U
SVOCs	Bis(2-chloroethoxy)methane	111-91-1	---	59	---	---	---	ug/L	0.570 U	0.620 U	0.620 U	0.570 U	0.570 U	0.580 U	0.570 U	0.640 U
SVOCs	Bis(2-chloroethyl)ether	111-44-4	---	0.014	---	---	0.04	ug/L	0.570 U	0.620 U	0.620 U	0.570 U	0.570 U	0.580 U	0.570 U	0.640 U
SVOCs	Bis(2-ethylhexyl) phthalate	117-81-7	6	5.6	---	320	6.3	ug/L	14 U	15 U	16 U	14 U	14 U	<b>6.3 JQ</b>	<b>10 JQ</b>	16 U
SVOCs	bis(chloroisopropyl) ether	108-60-1	---	710	---	320	0.63	ug/L	0.570 U	0.620 U	0.620 U	0.570 U	0.570 U	0.580 U	0.570 U	0.640 U
SVOCs	Butyl benzyl phthalate	85-68-7	---	16	---	3,200	46	ug/L	10 U	<b>0.420 JQ</b>	10 U	9.5 U	<b>0.380 JQ</b>	<b>0.410 JQ</b>	9.5 U	11 U
SVOCs	Carbazole	86-74-8	---	---	---	---	---	ug/L	0.570 U	0.620 U	0.620 U	0.570 U	0.570 U	0.580 U	0.570 U	0.640 U
SVOCs	Chrysene	218-01-9	---	25	---	---	---	ug/L	0.570 U	0.620 U	0.620 U	0.570 U	0.570 U	0.580 U	0.570 U	0.640 U
SVOCs	Dibenz(a,h)anthracene	53-70-3	---	0.025	---	---	---	ug/L	0.570 U	0.620 U	0.620 U	0.570 U	0.570 U	0.580 U	0.570 U	0.640 U
SVOCs	Dibenzofuran	132-64-9	---	7.9	---	16	---	ug/L	0.380 U	0.410 U	0.410 U	0.380 U	0.380 U	0.380 U	0.380 U	0.430 U
SVOCs	Diethyl phthalate	84-66-2	---	15,000	---	13,000	---	ug/L	11 U	12 U	12 U	11 U	11 U	12 U	11 U	13 U
SVOCs	Dimethyl phthalate	131-11-3	---	---	---	---	---	ug/L	0.570 U	0.620 U	0.620 U	0.570 U	0.570 U	0.580 U	0.570 U	0.640 U
SVOCs	Di-n-butyl phthalate	84-74-2	---	900	---	1,600	---	ug/L	2.9 U	3.1 U	3.1 U	2.8 U	2.9 U	2.9 U	2.8 U	3.2 U
SVOCs	Di-n-octyl phthalate	117-84-0	---	200	---	160	---	ug/L	0.960 U	<b>0.250 JQ</b>	1 U	<b>0.890 JQ</b>	<b>0.190 JQ</b>	<b>0.230 JQ</b>	<b>0.310 JQ</b>	<b>0.210 JQ</b>
SVOCs	Fluoranthene	206-44-0	---	800	---	640	---	ug/L	2.9 U	3.1 U	3.1 U	2.8 U	2.9 U	2.9 U	2.8 U	3.2 U
SVOCs	Fluorene	86-73-7	---	290	---	640	---	ug/L	1.9 U	2.1 U	2.1 U	1.9 U	1.9 U	1.9 U	1.9 U	2.1 U
SVOCs	Hexachlorobenzene	118-74-1	1	0.0098	---	13	0.055	ug/L	0.570 U	0.620 U	0.620 U	<b>5.2</b>	0.570 U	0.580 U	0.570 U	0.640 U
SVOCs	Hexachlorobutadiene	87-68-3	---	0.14	---	8	0.56	ug/L	0.960 U	1 U	1 U	<b>0.280 JQ</b>	0.950 U	0.960 U	0.950 U	1.1 U
SVOCs	Hexachlorocyclopentadiene	77-47-4	50	0.041	---	48	---	ug/L	2.9 UJL	3.1 UJL	3.1 UJL	2.8 UJL	2.9 UJL	2.9 UJL	2.8 UJL	3.2 UJL
SVOCs	Hexachloroethane	67-72-1	---	0.33	---	5.6	1.1	ug/L	0.960 U	1 U	1 U	<b>0.880 JQ</b>	0.950 U	0.960 U	0.950 U	1.1 U
SVOCs	Indeno[1,2,3-cd]pyrene	193-39-5	---	0.25	---	---	---	ug/L	0.960 U	1 U	1 U	0.950 U	0.950 U	0.960 U	0.950 U	1.1 U
SVOCs	Isophorone	78-59-1	---	78	---	1,600	46	ug/L	0.380 U	0.410 U	0.410 U	0.380 U	0.380 U	0.380 U	0.380 U	<b>0.210 JQ</b>
SVOCs	Naphthalene	91-20-3	---	0.17	160	160	---	ug/L	0.380 U	0.410 U	0.410 U	0.380 U	0.380 U	0.380 U	0.380 U	0.430 U
SVOCs	Nitrobenzene	98-95-3	---	0.14	---	16	---	ug/L	0.570 U	0.620 U	0.620 U	0.570 U	0.570 U	0.580 U	0.570 U	0.640 U
SVOCs	N-Nitrosodi-n-propylamine	621-64-7	---	0.011	---	---	0.013	ug/L	R	R	R	R	R	R	R	R
SVOCs	N-Nitrosodiphenylamine	86-30-6	---	12	---	---	18	ug/L	2.9 U	3.1 U	3.1 U	2.8 U	2.9 U	2.9 U	2.8 U	3.2 U

Table C-15 2019 Groundwater Analytical Results May Creek Landfill 15753 SE Renton Issaquah Rd Renton, WA																
Group	Chemical Analysis	CAS Number	EPA MCL	EPA RSL Tap Water	WA MTCA Method A	WA MTCA Method B (Noncancer, Direct Contact)	WA MTCA Method B (Cancer, Direct Contact)	Date:	7/23/2019	7/23/2019	7/23/2019	7/24/2019	7/23/2019	7/23/2019	7/23/2019	7/24/2019
								EPA Sample Number:	19070401	19070402	19070403	19070407	19070404	19070405	19070406	19070408
								Location:	MW-01	MW-02	Field Duplicate of MW-02	MW-03	MW-04	MW-05	MW-06	MW-07
								Units	Result	Result	Result	Result	Result	Result	Result	Result
SVOCs	Pentachlorophenol	87-86-5	1	0.041	---	80	0.22	ug/L	9.6 U	10 U	10 U	9.5 U	9.5 U	9.6 U	9.5 U	11 U
SVOCs	Phenanthrene	85-01-8	---	---	---	---	---	ug/L	0.960 U	1 U	1 U	0.950 U	0.950 U	0.960 U	0.950 U	1.1 U
SVOCs	Phenol	108-95-2	---	5,800	---	2,400	---	ug/L	3.8 U	4.1 U	4.1 U	3.8 U	3.8 U	3.8 U	3.8 U	4.3 U
SVOCs	Pyrene	129-00-0	---	120	---	480	---	ug/L	1.9 U	2.1 U	2.1 U	1.9 U	1.9 U	1.9 U	1.9 U	2.1 U
VOCs	1,1,1,2-Tetrachloroethane	630-20-6	---	0.57	---	240	1.7	ug/L	0.300 U	0.300 U	0.300 U	0.300 U	0.300 U	0.300 U	0.300 U	0.300 U
VOCs	1,1,1-Trichloroethane	71-55-6	200	8,000	200	16,000	---	ug/L	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U
VOCs	1,1,2,2-Tetrachloroethane	79-34-5	---	0.076	---	160	0.22	ug/L	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U
VOCs	1,1,2-Trichloroethane	79-00-5	5	0.28	---	32	0.77	ug/L	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U
VOCs	1,1-Dichloroethane	75-34-3	---	2.8	---	1,600	7.7	ug/L	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U
VOCs	1,1-Dichloroethene	75-35-4	7	280	---	400	---	ug/L	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U
VOCs	1,1-Dichloropropene	563-58-6	---	---	---	---	---	ug/L	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U
VOCs	1,2,3-Trichlorobenzene	87-61-6	---	7	---	---	---	ug/L	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
VOCs	1,2,3-Trichloropropane	96-18-4	---	0.00075	---	32	0.0015	ug/L	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U
VOCs	1,2,4-Trichlorobenzene	120-82-1	70	1.2	---	80	1.5	ug/L	0.300 U	0.300 U	0.300 U	0.300 U	0.300 U	0.300 U	0.300 U	0.300 U
VOCs	1,2,4-Trimethylbenzene	95-63-6	---	56	---	80	---	ug/L	0.300 U	0.300 U	0.300 U	0.300 U	0.300 U	0.300 U	0.300 U	0.300 U
VOCs	1,2-Dibromo-3-Chloropropane	96-12-8	0.2	0.00033	---	1.6	0.055	ug/L	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
VOCs	1,2-Dibromoethane	106-93-4	0.05	0.0075	0.01	72	0.022	ug/L	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U
VOCs	1,2-Dichlorobenzene	95-50-1	600	300	---	720	---	ug/L	0.300 U	0.300 U	0.300 U	0.300 U	0.300 U	0.300 U	0.300 U	0.300 U
VOCs	1,2-Dichloroethane	107-06-2	5	0.17	5	48	0.48	ug/L	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U
VOCs	1,2-Dichloropropane	78-87-5	5	0.85	---	320	1.2	ug/L	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U
VOCs	1,3,5-Trimethylbenzene	108-67-8	---	60	---	80	---	ug/L	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
VOCs	1,3-Dichlorobenzene	541-73-1	---	---	---	---	---	ug/L	0.300 U	0.300 U	0.300 U	0.300 U	0.300 U	0.300 U	0.300 U	0.300 U
VOCs	1,3-Dichloropropane	142-28-9	---	370	---	---	---	ug/L	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U
VOCs	1,4-Dichlorobenzene	106-46-7	75	0.48	---	560	8.1	ug/L	0.300 U	0.300 U	0.300 U	0.300 U	0.300 U	0.300 U	0.300 U	0.300 U
VOCs	2,2-Dichloropropane	594-20-7	---	---	---	---	---	ug/L	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
VOCs	2-Chlorotoluene	95-49-8	---	240	---	160	---	ug/L	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
VOCs	4-Chlorotoluene	106-43-4	---	250	---	---	---	ug/L	0.300 U	0.300 U	0.300 U	0.300 U	0.300 U	0.300 U	0.300 U	0.300 U
VOCs	4-Isopropyltoluene	99-87-6	---	---	---	---	---	ug/L	0.300 U	0.300 U	0.300 U	0.300 U	0.300 U	0.300 U	0.300 U	0.300 U
VOCs	Benzene	71-43-2	5	0.46	5	32	0.8	ug/L	0.200 U	0.200 U	0.200 U	0.200 U	<b>0.140 JQ</b>	0.200 U	0.200 U	0.200 U
VOCs	Bromobenzene	108-86-1	---	62	---	64	---	ug/L	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U
VOCs	Bromochloromethane	74-97-5	---	83	---	---	---	ug/L	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U
VOCs	Bromodichloromethane	75-27-4	80	0.13	---	160	0.71	ug/L	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U
VOCs	Bromoform	75-25-2	80	3.3	---	160	5.5	ug/L	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
VOCs	Bromomethane	74-83-9	---	7.5	---	11	---	ug/L	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
VOCs	Carbon tetrachloride	56-23-5	5	0.46	---	32	0.63	ug/L	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U
VOCs	Chlorobenzene	108-90-7	100	78	---	160	---	ug/L	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U
VOCs	Chloroethane	75-00-3	---	21,000	---	---	---	ug/L	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
VOCs	Chloroform	67-66-3	80	0.22	---	80	1.4	ug/L	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U
VOCs	Chloromethane	74-87-3	---	190	---	---	---	ug/L	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U

<p><b>Table C-15</b>  <b>2019 Groundwater Analytical Results</b>  <b>May Creek Landfill</b>  <b>15753 SE Renton Issaquah Rd</b>  <b>Renton, WA</b></p>																
Group	Chemical Analysis	CAS Number	EPA MCL	EPA RSL Tap Water	WA MTCA Method A	WA MTCA Method B (Noncancer, Direct Contact)	WA MTCA Method B (Cancer, Direct Contact)	Date:	7/23/2019	7/23/2019	7/23/2019	7/24/2019	7/23/2019	7/23/2019	7/23/2019	7/24/2019
								EPA Sample Number:	19070401	19070402	19070403	19070407	19070404	19070405	19070406	19070408
								Location:	MW-01	MW-02	Field Duplicate of MW-02	MW-03	MW-04	MW-05	MW-06	MW-07
								Units	Result	Result	Result	Result	Result	Result	Result	Result
VOCs	cis-1,2-Dichloroethene	156-59-2	70	36	---	16	---	ug/L	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U
VOCs	cis-1,3-Dichloropropene	10061-01-5	---	---	---	---	---	ug/L	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U
VOCs	Dibromochloromethane	124-48-1	80	0.87	---	160	0.52	ug/L	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U
VOCs	Dibromomethane	74-95-3	---	8.3	---	80	---	ug/L	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U
VOCs	Dichlorodifluoromethane	75-71-8	---	200	---	1,600	---	ug/L	0.400 U	0.400 U	0.400 U	0.400 U	0.400 U	0.400 U	0.400 U	0.400 U
VOCs	Ethylbenzene	100-41-4	700	1.5	700	800	---	ug/L	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U
VOCs	Hexachlorobutadiene	87-68-3	---	0.14	---	8	0.56	ug/L	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
VOCs	Isopropylbenzene	98-82-8	---	450	---	800	---	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
VOCs	Methyl tert-butyl ether	1634-04-4	---	14	20	---	24	ug/L	0.300 U	0.300 U	0.300 U	0.300 U	0.300 U	0.300 U	0.300 U	0.300 U
VOCs	Methylene Chloride	75-09-2	5	11	5	48	22	ug/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
VOCs	m-Xylene & p-Xylene	179601-23-1	---	---	---	---	---	ug/L	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
VOCs	Naphthalene	91-20-3	---	0.17	160	160	---	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
VOCs	n-Butylbenzene	104-51-8	---	1,000	---	400	---	ug/L	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
VOCs	N-Propylbenzene	103-65-1	---	660	---	800	---	ug/L	0.300 U	0.300 U	0.300 U	0.300 U	0.300 U	0.300 U	0.300 U	0.300 U
VOCs	o-Xylene	95-47-6	---	190	---	1,600	---	ug/L	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
VOCs	sec-Butylbenzene	135-98-8	---	2,000	---	800	---	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
VOCs	Styrene	100-42-5	100	1,200	---	1,600	---	ug/L	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
VOCs	t-Butylbenzene	98-06-6	---	690	---	800	---	ug/L	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
VOCs	Tetrachloroethene	127-18-4	5	11	5	48	21	ug/L	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
VOCs	Toluene	108-88-3	1,000	1,100	1,000	640	---	ug/L	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U
VOCs	trans-1,2-Dichloroethene	156-60-5	100	360	---	160	---	ug/L	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U
VOCs	trans-1,3-Dichloropropene	10061-02-6	---	---	---	---	---	ug/L	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U
VOCs	Trichloroethene	79-01-6	5	0.49	5	4	0.54	ug/L	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U
VOCs	Trichlorofluoromethane	75-69-4	---	5,200	---	2,400	---	ug/L	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
VOCs	Vinyl chloride	75-01-4	2	0.019	0.2	24	0.029	ug/L	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U



Notes:

- 1,180** = Yellow highlighting indicates results that exceed listed screening levels.
- 1,180** = Bold text indicates a detected result.
- = Not Applicable
- CAS = Chemical Abstracts Service
- Dx = Northwest Total Petroleum Hydrocarbons - Extended Diesel Range (Semi-volatile Petroleum Products)
- EPA MCL = Environmental Protection Agency (EPA) Maximum Contaminant Level (MCL)
- EPA RSL = Environmental Protection Agency (EPA) Regional Screening Levels (RSL), 40 CFR Part 300, November 2019
- Gx = Northwest Total Petroleum Hydrocarbons - Extended Gasoline Range (Volatile Petroleum Products)
- H = The sample result is biased high.
- J = The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
- K = The bias of the sample is not known.
- L = The sample result is biased low.
- Metals = Target Analyte List Metals, EPA Method 6010D (ICP-AES) and 7470A (CVAA)
- Pesticides = Organochlorine Pesticides, EPA Method 8081B by GC/ECD
- PCBs = Polychlorinated Biphenyls (PCBs), EPA Method 8082A by GC/ECD
- Q = Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.
- R = The data is rejected and unusable. The analyte may or may not be present in the sample.
- SVOCs = Semi-Volatile Organic Compounds, EPA Method 8270D by GC/MS
- U = The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- ug/L = micrograms per liter
- VOCs = Volatile Organic Compounds, EPA Method 8260C by GC/MS
- WA MTCA Method A = Washington State (WA) Model Toxics Control Act (MTCA) Cleanup Regulation Method A (unrestricted land use) value from the Cleanup and Risk Calculations tables (CLARC), chapter 173-340 WAC, August 2015
- WA MTCA Method B = Washington State (WA) Model Toxics Control Act (MTCA) Cleanup Regulation Method B (unrestricted land use) value from the Cleanup and Risk Calculations tables (CLARC), chapter 173-340 WAC, August 2015

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# **Appendix D**

## **Data Validation Memoranda**

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### MEMORANDUM

DATE: December 31, 2018

TO: Steve Hall, START-IV Project Manager, E & E, Seattle, Washington

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington *MW*

SUBJ: **Inorganic Data Quality Assurance Review, May Creek Removal Action Site, Renton, Washington**

REF: TO: TO-68HE0718F0470      PAN: 1004530.0470.001.01

The data quality assurance review of 10 soil samples collected from the May Creek Removal Action site in Renton, Washington, has been completed. Target Analyte List (TAL) metals analyses (EPA Methods 6010 and 7471) were performed by Environmental Monitoring and Technologies, Inc., Morton Grove, Illinois. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Manual Process (S2B/4VM).

The samples were numbered:

18111101	18111103	18111105	18111106	18111107
18111108	18111110	18111111	18111112	18111113

#### Data Qualifications:

**1. Sample Holding Times: Acceptable.**

The samples were maintained at  $< 6^{\circ}\text{C}$  (only applies to mercury). The samples were collected between November 18 and 28, 2018, and were analyzed by December 4, 2018, therefore meeting QC criteria of less than 6 months between collection, extraction, and analysis (28 days for mercury).

**2. Initial and Continuing Calibration: Acceptable.**

A minimum of one calibration standard and a blank were analyzed at the beginning of the ICP analysis sequence and after every 10 samples. No results were greater than 110% of the highest calibration standard. All ICP recoveries were within the QC limits. All AA recoveries were within QC limits and the initial calibration correlation coefficient was  $> 0.995$ .

**3. Blanks: Acceptable.**

A preparation blank was analyzed for each 20 samples or per matrix per concentration level. Blanks were analyzed after each Initial or Continuing Calibration Verification. There were no detections in any blanks that potentially affected sample results.

**4. ICP Interference Check Sample: Acceptable.**

An Interference Check Sample (ICS) was analyzed at the beginning of each sequence or at least twice every 8 hours, whichever was more frequent. All applicable ICS (solution AB) results were within



QC limits of 80% - 120% recovery.

**5. ICP Serial Dilution: Acceptable.**

A serial dilution analysis was performed per matrix per concentration or per sample delivery group, whichever was more frequent. All applicable serial dilution results were within QC limits.

**6. Matrix Spike Analysis: Satisfactory.**

A matrix spike analysis was performed per SDG or per matrix per concentration level, whichever was more frequent. Spike recoveries were within the QC limits except antimony with a low recovery and barium, copper, potassium, zinc, silver, and lead with high recoveries associated with samples 18111101 and 18111103 and lead and zinc with high recoveries and antimony and manganese with low recoveries associated with the remainder of the samples. Positive samples results associated with high recoveries were qualified as estimated quantities with a high bias (JH) and positive results and sample quantitation limits associated with low recoveries were qualified as estimated quantities with a low bias (JL or UJL).

**7. Duplicate Analysis: Satisfactory.**

A laboratory spike duplicate analysis was performed per SDG or per matrix per concentration level, whichever was more frequent. All spike duplicate results were within QC limits except silver associated with samples 18111101 and 18111103; no additional actions were taken based on this outlier.

**8. Laboratory Control Sample Analysis: Acceptable.**

A Laboratory Control Sample (LCS) was analyzed per SDG per matrix. All LCS results were within the established control limits.

**9. Overall Assessment of Data for Use**

A total of 230 results were validated in this data memorandum. No sample results were qualified as estimated quantities (J) based on duplicate precision outliers, holding time outliers, incorrect sample containers, sample temperature outliers, or serial dilution outliers. No sample results were rejected (R). A total of 25 sample results were qualified as estimated quantities (J) based on spike accuracy outliers.

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the analytical method(s), the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, and/or the Office of Emergency and Remedial Response Publication "National Functional Guidelines for Superfund Inorganic Methods Data Review, January 2017". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

H - The sample result is biased high.

J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

K - The bias of the sample is not known.





- L - The sample result is biased low.
- Q - Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.
- R - The data is rejected and unusable. The analyte may or may not be present in the sample.
- U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.



**1 - FORM I**  
**ANALYSIS DATA SHEET**

18111101

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB				
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01				
Matrix:	Soil	Laboratory ID:	18K0755-01	File ID:	11272018-042		
Sampled:	11/19/18 00:00	Prepared:	11/26/18 11:19	Analyzed:	11/27/18 16:23		
Solids:	78.64	Preparation:	3050_METALS_PREP	Dilution:	100		
Initial/Final:	2.0956 g / 50 ml						
Batch:	B8K0774	Sequence:	S8K0415	Calibration:	EK80065	Instrument:	ICP-AES 7400

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7439-89-6	Iron	15700	112	243	303	<del>D.B.</del> W

MW 12-31-18

**1 - FORM I**  
**ANALYSIS DATA SHEET**

18111101

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB				
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01				
Matrix:	Soil	Laboratory ID:	18K0755-01RE1	File ID:	11272018-044		
Sampled:	11/19/18 00:00	Prepared:	11/26/18 11:19	Analyzed:	11/27/18 16:31		
Solids:	78.64	Preparation:	3050_METALS_PREP	Dilution:	10		
Initial/Final:	2.0956 g / 50 ml						
Batch:	B8K0774	Sequence:	S8K0415	Calibration:	EK80065	Instrument:	ICP-AES 7400

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7429-90-5	Aluminum	12300	28.5	60.7	75.9	D
7440-70-2	Calcium	4240	30.3	60.7	75.9	D
7439-95-4	Magnesium	3360	20.6	60.7	75.9	D
7440-28-0	Thallium		4.01	12.1	15.2	U

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# 1 - FORM I ANALYSIS DATA SHEET

18111101

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Soil	Laboratory ID:	18K0755-01RE2
		File ID:	11272018-050
Sampled:	11/19/18 00:00	Prepared:	11/26/18 11:19
		Analyzed:	11/27/18 16:55
Solids:	78.64	Preparation:	3050_METALS_PREP
		Dilution:	1
Initial/Final:	2.0956 g / 50 ml		
Batch:	B8K0774	Sequence:	S8K0415
		Calibration:	EK80065
		Instrument:	ICP-AES 7400

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7440-36-0	Antimony		0.546	1.21	1.52	U JL
7440-38-2	Arsenic	7.99	0.546	1.21	1.52	
7440-39-3	Barium	55.4 JL	0.425	1.21	1.52	
7440-41-7	Beryllium		0.0607	0.121	0.152	U
7440-43-9	Cadmium	0.246	0.0546	0.121	0.152	
7440-47-3	Chromium	11.9	0.334	1.21	1.52	
7440-48-4	Cobalt	5.62	0.0910	0.303	1.52	
7440-50-8	Copper	27.4 JL	0.589	1.21	1.52	
7439-92-1	Lead	18.3 JL	0.607	1.21	1.52	
7439-96-5	Manganese	313	0.303	0.607	1.52	
7440-02-0	Nickel	16.7	0.546	1.21	1.52	
7440-09-7	Potassium	581 JL	2.55	6.07	7.59	
7782-49-2	Selenium		0.546	1.21	1.52	U
7440-22-4	Silver	0.458 JL	0.0971	0.303	1.52	JQ
7440-23-5	Sodium	184	2.73	6.07	7.59	
7440-62-2	Vanadium	28.4	0.364	1.21	1.52	
7440-66-6	Zinc	52.0 JL	0.607	1.21	1.52	

MW 12-31-18

**1 - FORM I**  
**ANALYSIS DATA SHEET**

18111103

Laboratory:	Environmental Monitoring and Tech			SDG:	10RB	
Client:	Ecology and Environment, Inc.			Project:	1004530.0470.001.01	
Matrix:	Soil	Laboratory ID:	18K0755-02	File ID:	11272018-043	
Sampled:	11/19/18 00:00	Prepared:	11/26/18 11:19	Analyzed:	11/27/18 16:27	
Solids:	72.73	Preparation:	3050_METALS_PREP	Dilution:	100	
Initial/Final:	2.0624 g / 50 ml					
Batch:	B8K0774	Sequence:	S8K0415	Calibration:	EK80065	Instrument: ICP-AES 7400

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7429-90-5	Aluminum	15900	313	667	833	<i>[Signature]</i>

*MW 12-31-18*

# 1 - FORM I ANALYSIS DATA SHEET

18111103

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Soil	Laboratory ID:	18K0755-02RE2
		File ID:	11272018-059
Sampled:	11/19/18 00:00	Prepared:	11/26/18 11:19
		Analyzed:	11/27/18 17:33
Solids:	72.73	Preparation:	3050_METALS_PREP
		Dilution:	1
Initial/Final:	2.0624 g / 50 ml		
Batch:	B8K0774	Sequence:	S8K0415
		Calibration:	EK80065
		Instrument:	ICP-AES 7400

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7440-36-0	Antimony		0.600	1.33	1.67	U JL
7440-38-2	Arsenic	9.95	0.600	1.33	1.67	
7440-39-3	Barium	80.4 JL	0.467	1.33	1.67	
7440-41-7	Beryllium		0.0667	0.133	0.167	U
7440-43-9	Cadmium	0.317	0.0600	0.133	0.167	
7440-47-3	Chromium	20.2	0.367	1.33	1.67	
7440-48-4	Cobalt	6.31	0.100	0.333	1.67	
7440-50-8	Copper	28.8 JL	0.647	1.33	1.67	
7439-92-1	Lead	21.2 JL	0.667	1.33	1.67	
7439-96-5	Manganese	477	0.333	0.667	1.67	
7440-02-0	Nickel	20.0	0.600	1.33	1.67	
7440-09-7	Potassium	692 JL	2.80	6.67	8.33	
7782-49-2	Selenium		0.600	1.33	1.67	U
7440-22-4	Silver	0.570 <del>FLAW</del>	0.107	0.333	1.67	JQ
7440-23-5	Sodium	342	3.00	6.67	8.33	
7440-62-2	Vanadium	32.4	0.400	1.33	1.67	
7440-66-6	Zinc	63.0 JL	0.667	1.33	1.67	

MW 12-31-18

**1 - FORM I**  
**ANALYSIS DATA SHEET**

18111103

Laboratory:	Environmental Monitoring and Tech			SDG:	10RB
Client:	Ecology and Environment, Inc.			Project:	1004530.0470.001.01
Matrix:	Soil	Laboratory ID:	18K0755-02RE1	File ID:	11272018-049
Sampled:	11/19/18 00:00	Prepared:	11/26/18 11:19	Analyzed:	11/27/18 16:51
Solids:	72.73	Preparation:	3050_METALS_PREP	Dilution:	10
Initial/Final:	2.0624 g / 50 ml				
Batch:	B8K0774	Sequence:	S8K0415	Calibration:	EK80065
				Instrument:	ICP-AES 7400

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7440-70-2	Calcium	3980	33.3	66.7	83.3	<del>DTW</del>
7439-89-6	Iron	14500	12.3	26.7	33.3	<del>DTW</del>
7439-95-4	Magnesium	3820	22.7	66.7	83.3	<del>DTW</del>
7440-28-0	Thallium		4.40	13.3	16.7	U

MW 12-3-18



**1 - FORM I**  
**ANALYSIS DATA SHEET**

18111105

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB				
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01				
Matrix:	Soil	Laboratory ID:	18K0902-01	File ID:	12032018-070		
Sampled:	11/27/18 00:00	Prepared:	12/03/18 08:57	Analyzed:	12/03/18 19:04		
Solids:	82.99	Preparation:	3050_METALS_PREP	Dilution:	100		
Initial/Final:	2.2175 g / 50 ml						
Batch:	B8L0013	Sequence:	S8L0021	Calibration:	EL80003	Instrument:	ICP-AES 7400

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7429-90-5	Aluminum	15600	255	543	679	D
7439-89-6	Iron	16900	100	217	272	D

MW 12-3-18

# 1 - FORM I ANALYSIS DATA SHEET

18111105

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Soil	Laboratory ID:	18K0902-01RE1
		File ID:	12032018-087
Sampled:	11/27/18 00:00	Prepared:	12/03/18 08:57
		Analyzed:	12/03/18 20:13
Solids:	82.99	Preparation:	3050_METALS_PREP
		Dilution:	10
Initial/Final:	2.2175 g / 50 ml		
Batch:	B8L0013	Sequence:	S8L0021
		Calibration:	EL80003
		Instrument:	ICP-AES 7400

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7440-38-2	Arsenic	5.00	4.89	10.9	13.6	J, <i>HLQ</i>
7440-43-9	Cadmium		0.489	1.09	1.36	U
7440-70-2	Calcium	3220	27.2	54.3	67.9	D
7440-47-3	Chromium	22.6	2.99	10.9	13.6	D <i>HLQ</i>
7439-92-1	Lead	8.18 <i>HLQ</i>	5.43	10.9	13.6	J, <i>HLQ</i>
7439-95-4	Magnesium	3090	18.5	54.3	67.9	D <i>HLQ</i>
7440-22-4	Silver	3.91	0.869	2.72	13.6	J, <i>HLQ</i>
7440-28-0	Thallium		3.59	10.9	13.6	U

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# 1 - FORM I

## ANALYSIS DATA SHEET

18111105

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Soil	Laboratory ID:	18K0902-01RE2
		File ID:	12032018-099
Sampled:	11/27/18 00:00	Prepared:	12/03/18 08:57
		Analyzed:	12/03/18 21:02
Solids:	82.99	Preparation:	3050_METALS_PREP
		Dilution:	1
Initial/Final:	2.2175 g / 50 ml		
Batch:	B8L0013	Sequence:	S8L0021
		Calibration:	EL80003
		Instrument:	ICP-AES 7400

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7440-36-0	Antimony		0.489	1.09	1.36	U JL
7440-39-3	Barium	52.0	0.380	1.09	1.36	
7440-41-7	Beryllium		0.0543	0.109	0.136	U
7440-48-4	Cobalt	6.15	0.0815	0.272	1.36	
7440-50-8	Copper	18.7	0.527	1.09	1.36	
7439-96-5	Manganese	204 JL	0.272	0.543	1.36	
7440-02-0	Nickel	17.5	0.489	1.09	1.36	
7440-09-7	Potassium	466	2.28	5.43	6.79	
7782-49-2	Selenium		0.489	1.09	1.36	U
7440-23-5	Sodium	147	2.45	5.43	6.79	
7440-62-2	Vanadium	35.2	0.326	1.09	1.36	
7440-66-6	Zinc	20.4 JH	0.543	1.09	1.36	

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**1 - FORM I**  
**ANALYSIS DATA SHEET**

18111106

Laboratory:	Environmental Monitoring and Tech			SDG:	10RB
Client:	Ecology and Environment, Inc.			Project:	1004530.0470.001.01
Matrix:	Soil	Laboratory ID:	18K0902-02	File ID:	12032018-071
Sampled:	11/27/18 00:00	Prepared:	12/03/18 08:57	Analyzed:	12/03/18 19:08
Solids:	79.21	Preparation:	3050_METALS_PREP	Dilution:	100
Initial/Final:	2.1582 g / 50 ml				
Batch:	B8L0013	Sequence:	S8L0021	Calibration:	EL80003
				Instrument:	ICP-AES 7400

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7439-89-6	Iron	25100	108	234	292	<i>[Signature]</i>

*MW 12-3-18*



# 1 - FORM I

## ANALYSIS DATA SHEET

18111106

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Soil	Laboratory ID:	18K0902-02RE2
		File ID:	12032018-100
Sampled:	11/27/18 00:00	Prepared:	12/03/18 08:57
		Analyzed:	12/03/18 21:06
Solids:	79.21	Preparation:	3050_METALS_PREP
		Dilution:	1
Initial/Final:	2.1582 g / 50 ml		
Batch:	B8L0013	Sequence:	S8L0021
		Calibration:	EL80003
		Instrument:	ICP-AES 7400

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7440-36-0	Antimony		0.526	1.17	1.46	U JL
7440-39-3	Barium	119	0.409	1.17	1.46	
7440-41-7	Beryllium		0.0585	0.117	0.146	U
7440-48-4	Cobalt	9.42	0.0877	0.292	1.46	
7440-50-8	Copper	19.0	0.567	1.17	1.46	
7439-96-5	Manganese	254 JL	0.292	0.585	1.46	
7440-02-0	Nickel	34.2	0.526	1.17	1.46	
7440-09-7	Potassium	938	2.46	5.85	7.31	
7782-49-2	Selenium		0.526	1.17	1.46	U
7440-23-5	Sodium	177	2.63	5.85	7.31	
7440-62-2	Vanadium	42.9	0.351	1.17	1.46	
7440-66-6	Zinc	32.3 JH	0.585	1.17	1.46	

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# 1 - FORM I

## ANALYSIS DATA SHEET

18111106

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Soil	Laboratory ID:	18K0902-02RE1
		File ID:	12032018-088
Sampled:	11/27/18 00:00	Prepared:	12/03/18 08:57
		Analyzed:	12/03/18 20:17
Solids:	79.21	Preparation:	3050_METALS_PREP
		Dilution:	10
Initial/Final:	2.1582 g / 50 ml		
Batch:	B8L0013	Sequence:	S8L0021
		Calibration:	EL80003
		Instrument:	ICP-AES 7400

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7440-38-2	Arsenic		5.26	11.7	14.6	U
7440-43-9	Cadmium		0.526	1.17	1.46	U
7440-70-2	Calcium	4250	29.2	58.5	73.1	D
7440-47-3	Chromium	54.6	3.22	11.7	14.6	D <i>mu</i>
7439-92-1	Lead		5.85	11.7	14.6	U
7439-95-4	Magnesium	6210	19.9	58.5	73.1	D
7440-22-4	Silver	5.26	0.936	2.92	14.6	J, D <i>Q</i>
7440-28-0	Thallium	4.24	3.86	11.7	14.6	J, D <i>Q</i>

*MW 12-31-18*

**1 - FORM I**  
**ANALYSIS DATA SHEET**

18111106

Laboratory:	Environmental Monitoring and Tech			SDG:	10RB	
Client:	Ecology and Environment, Inc.			Project:	1004530.0470.001.01	
Matrix:	Soil	Laboratory ID:	18K0902-02RE3	File ID:	12042018-042	
Sampled:	11/27/18 00:00	Prepared:	12/03/18 08:57	Analyzed:	12/04/18 18:00	
Solids:	79.21	Preparation:	3050_METALS_PREP	Dilution:	100	
Initial/Final:	2.1582 g / 50 ml					
Batch:	B8L0013	Sequence:	S8L0043	Calibration:	EL80008	Instrument: ICP-AES 7400

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7429-90-5	Aluminum	19200	275	585	731	<i>[Signature]</i>

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**1 - FORM I**  
**ANALYSIS DATA SHEET**

18111107

Laboratory:	Environmental Monitoring and Tech			SDG:	10RB		
Client:	Ecology and Environment, Inc.			Project:	1004530.0470.001.01		
Matrix:	Soil	Laboratory ID:	18K0902-03	File ID:	12032018-072		
Sampled:	11/27/18 00:00	Prepared:	12/03/18 08:57	Analyzed:	12/03/18 19:12		
Solids:	78.48	Preparation:	3050_METALS_PREP	Dilution:	100		
Initial/Final:	2.1098 g / 50 ml						
Batch:	B8L0013	Sequence:	S8L0021	Calibration:	EL80003	Instrument:	ICP-AES 7400

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7429-90-5	Aluminum	19300	284	604	755	D
7439-89-6	Iron	16200	111	242	302	D

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# 1 - FORM I

## ANALYSIS DATA SHEET

18111107

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Soil	Laboratory ID:	18K0902-03RE2
		File ID:	12032018-101
Sampled:	11/27/18 00:00	Prepared:	12/03/18 08:57
		Analyzed:	12/03/18 21:11
Solids:	78.48	Preparation:	3050_METALS_PREP
		Dilution:	1
Initial/Final:	2.1098 g / 50 ml		
Batch:	B8L0013	Sequence:	S8L0021
		Calibration:	EL80003
		Instrument:	ICP-AES 7400

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7440-36-0	Antimony		0.544	1.21	1.51	U JL
7440-39-3	Barium	80.8	0.423	1.21	1.51	
7440-41-7	Beryllium		0.0604	0.121	0.151	U
7440-48-4	Cobalt	7.34	0.0906	0.302	1.51	
7440-50-8	Copper	19.6	0.586	1.21	1.51	
7439-96-5	Manganese	175 JL	0.302	0.604	1.51	
7440-02-0	Nickel	47.9	0.544	1.21	1.51	
7440-09-7	Potassium	822	2.54	6.04	7.55	
7782-49-2	Selenium		0.544	1.21	1.51	U
7440-23-5	Sodium	122	2.72	6.04	7.55	
7440-62-2	Vanadium	36.4	0.362	1.21	1.51	
7440-66-6	Zinc	20.1 JH	0.604	1.21	1.51	

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# 1 - FORM I ANALYSIS DATA SHEET

18111107

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Soil	Laboratory ID:	18K0902-03RE1
		File ID:	12032018-089
Sampled:	11/27/18 00:00	Prepared:	12/03/18 08:57
		Analyzed:	12/03/18 20:21
Solids:	78.48	Preparation:	3050_METALS_PREP
		Dilution:	10
Initial/Final:	2.1098 g / 50 ml		
Batch:	B8L0013	Sequence:	S8L0021
		Calibration:	EL80003
		Instrument:	ICP-AES 7400

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7440-38-2	Arsenic		5.44	12.1	15.1	U
7440-43-9	Cadmium		0.544	1.21	1.51	U
7440-70-2	Calcium	2910	30.2	60.4	75.5	D
7440-47-3	Chromium	46.1	3.32	12.1	15.1	D
7439-92-1	Lead		6.04	12.1	15.1	U
7439-95-4	Magnesium	6640	20.5	60.4	75.5	D
7440-22-4	Silver	4.50	0.966	3.02	15.1	J, D Q
7440-28-0	Thallium	5.98	3.99	12.1	15.1	J, D Q

*mw 12-31-18*

**1 - FORM I**  
**ANALYSIS DATA SHEET**

18111108

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB				
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01				
Matrix:	Soil	Laboratory ID:	18K0902-04	File ID:	12032018-073		
Sampled:	11/27/18 00:00	Prepared:	12/03/18 08:57	Analyzed:	12/03/18 19:16		
Solids:	77.87	Preparation:	3050_METALS_PREP	Dilution:	100		
Initial/Final:	2.1095 g / 50 ml						
Batch:	B8L0013	Sequence:	S8L0021	Calibration:	EL80003	Instrument:	ICP-AES 7400

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7429-90-5	Aluminum	25700	286	609	761	0
7439-89-6	Iron	18300	112	244	304	0

*MW 12-31-18*

# 1 - FORM I

## ANALYSIS DATA SHEET

18111108

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Soil	Laboratory ID:	18K0902-04RE1
		File ID:	12032018-090
Sampled:	11/27/18 00:00	Prepared:	12/03/18 08:57
		Analyzed:	12/03/18 20:25
Solids:	77.87	Preparation:	3050_METALS_PREP
		Dilution:	10
Initial/Final:	2.1095 g / 50 ml		
Batch:	B8L0013	Sequence:	S8L0021
		Calibration:	EL80003
		Instrument:	ICP-AES 7400

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7440-38-2	Arsenic	6.18	5.48	12.2	15.2	J, <del>D</del> <i>Q</i>
7440-43-9	Cadmium		0.548	1.22	1.52	U
7440-70-2	Calcium	3530	30.4	60.9	76.1	<del>D</del>
7440-47-3	Chromium	28.8	3.35	12.2	15.2	<del>D</del> <i>m</i>
7439-92-1	Lead		6.09	12.2	15.2	U
7439-95-4	Magnesium	3770	20.7	60.9	76.1	<del>D</del>
7440-22-4	Silver	4.93	0.974	3.04	15.2	J, <del>D</del> <i>Q</i>
7440-28-0	Thallium	5.39	4.02	12.2	15.2	J, <del>D</del> <i>Q</i>

*MW 12-3418*



# 1 - FORM I ANALYSIS DATA SHEET

18111108

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Soil	Laboratory ID:	18K0902-04RE2
		File ID:	12032018-102
Sampled:	11/27/18 00:00	Prepared:	12/03/18 08:57
		Analyzed:	12/03/18 21:15
Solids:	77.87	Preparation:	3050_METALS_PREP
		Dilution:	1
Initial/Final:	2.1095 g / 50 ml		
Batch:	B8L0013	Sequence:	S8L0021
		Calibration:	EL80003
		Instrument:	ICP-AES 7400

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7440-36-0	Antimony		0.548	1.22	1.52	U JL
7440-39-3	Barium	55.8	0.426	1.22	1.52	
7440-41-7	Beryllium		0.0609	0.122	0.152	U
7440-48-4	Cobalt	7.58	0.0913	0.304	1.52	
7440-50-8	Copper	17.7	0.591	1.22	1.52	
7439-96-5	Manganese	245 JL	0.304	0.609	1.52	
7440-02-0	Nickel	22.1	0.548	1.22	1.52	
7440-09-7	Potassium	1050	2.56	6.09	7.61	
7782-49-2	Selenium		0.548	1.22	1.52	U
7440-23-5	Sodium	137	2.74	6.09	7.61	
7440-62-2	Vanadium	40.5	0.365	1.22	1.52	
7440-66-6	Zinc	28.1 JH	0.609	1.22	1.52	

JW 12-31-18

**1 - FORM I**  
**ANALYSIS DATA SHEET**

18111110

Laboratory:	Environmental Monitoring and Tech			SDG:	10RB	
Client:	Ecology and Environment, Inc.			Project:	1004530.0470.001.01	
Matrix:	Subsurface Soil	Laboratory ID:	18K0933-01	File ID:	12032018-074	
Sampled:	11/28/18 08:20	Prepared:	12/03/18 08:57	Analyzed:	12/03/18 19:20	
Solids:	85.56	Preparation:	3050_METALS_PREP	Dilution:	100	
Initial/Final:	2.0498 g / 50 ml					
Batch:	B8L0013	Sequence:	S8L0021	Calibration:	EL80003	Instrument: ICP-AES 7400

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7429-90-5	Aluminum	25500	268	570	713	D
7439-89-6	Iron	18600	105	228	285	D

JW 12-3-18

# 1 - FORM I ANALYSIS DATA SHEET

18111110

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Subsurface Soil	Laboratory ID:	18K0933-01RE1
Sampled:	11/28/18 08:20	Prepared:	12/03/18 08:57
Solids:	85.56	Preparation:	3050_METALS_PREP
Initial/Final:	2.0498 g / 50 ml	Dilution:	10
Batch:	B8L0013	Sequence:	S8L0021
		Calibration:	EL80003
		Instrument:	ICP-AES 7400

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7440-38-2	Arsenic	8.50	5.13	11.4	14.3	J, D <i>Q</i>
7440-43-9	Cadmium		0.513	1.14	1.43	U
7440-70-2	Calcium	4390	28.5	57.0	71.3	D
7440-47-3	Chromium	30.0	3.14	11.4	14.3	D <i>Q</i>
7439-92-1	Lead		5.70	11.4	14.3	U
7439-95-4	Magnesium	4070	19.4	57.0	71.3	D
7440-22-4	Silver	5.22	0.912	2.85	14.3	J, D <i>Q</i>
7440-28-0	Thallium	4.36	3.76	11.4	14.3	J, D <i>Q</i>

*Q* 12-31-18

# 1 - FORM I ANALYSIS DATA SHEET

18111110

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Subsurface Soil	Laboratory ID:	18K0933-01RE2
Sampled:	11/28/18 08:20	Prepared:	12/03/18 08:57
Solids:	85.56	Preparation:	3050_METALS_PREP
Initial/Final:	2.0498 g / 50 ml	Analyzed:	12/03/18 21:19
Batch:	B8L0013	Sequence:	S8L0021
		Calibration:	EL80003
		Instrument:	ICP-AES 7400

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7440-36-0	Antimony		0.513	1.14	1.43	U JL
7440-39-3	Barium	81.1	0.399	1.14	1.43	
7440-41-7	Beryllium		0.0570	0.114	0.143	U
7440-48-4	Cobalt	8.30	0.0855	0.285	1.43	
7440-50-8	Copper	30.0	0.553	1.14	1.43	
7439-96-5	Manganese	268 JL	0.285	0.570	1.43	
7440-02-0	Nickel	23.5	0.513	1.14	1.43	
7440-09-7	Potassium	802	2.39	5.70	7.13	
7782-49-2	Selenium		0.513	1.14	1.43	U
7440-23-5	Sodium	248	2.57	5.70	7.13	
7440-62-2	Vanadium	50.2	0.342	1.14	1.43	
7440-66-6	Zinc	36.5 JH	0.570	1.14	1.43	

JW 12-31-18



**1 - FORM I**  
**ANALYSIS DATA SHEET**

18111111

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB				
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01				
Matrix:	Subsurface Soil	Laboratory ID:	18K0933-02	File ID:	12032018-075		
Sampled:	11/28/18 09:20	Prepared:	12/03/18 08:57	Analyzed:	12/03/18 19:24		
Solids:	84.86	Preparation:	3050_METALS_PREP	Dilution:	100		
Initial/Final:	2.1678 g / 50 ml						
Batch:	B8L0013	Sequence:	S8L0021	Calibration:	EL80003	Instrument:	ICP-AES 7400

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7429-90-5	Aluminum	17500	255	544	679	D
7439-89-6	Iron	18400	100	217	272	D mw

*MW 12-31-18*

# 1 - FORM I ANALYSIS DATA SHEET

18111111

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Subsurface Soil	Laboratory ID:	18K0933-02RE1
		File ID:	12032018-092
Sampled:	11/28/18 09:20	Prepared:	12/03/18 08:57
		Analyzed:	12/03/18 20:33
Solids:	84.86	Preparation:	3050_METALS_PREP
		Dilution:	10
Initial/Final:	2.1678 g / 50 ml		
Batch:	B8L0013	Sequence:	S8L0021
		Calibration:	EL80003
		Instrument:	ICP-AES 7400

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7440-38-2	Arsenic	6.71	4.89	10.9	13.6	J, <del>Q</del>
7440-43-9	Cadmium		0.489	1.09	1.36	U
7440-70-2	Calcium	2570	27.2	54.4	67.9	D
7440-47-3	Chromium	31.2	2.99	10.9	13.6	D, <del>Q</del>
7439-92-1	Lead		5.44	10.9	13.6	U
7439-95-4	Magnesium	4820	18.5	54.4	67.9	D
7440-22-4	Silver	4.87	0.870	2.72	13.6	J, D, <del>Q</del>
7440-28-0	Thallium	5.33	3.59	10.9	13.6	J, D, <del>Q</del>

12-348

**1 - FORM I**  
**ANALYSIS DATA SHEET**

18111112

Laboratory:	Environmental Monitoring and Tech			SDG:	10RB
Client:	Ecology and Environment, Inc.			Project:	1004530.0470.001.01
Matrix:	Subsurface Soil	Laboratory ID:	18K0933-03	File ID:	12032018-076
Sampled:	11/28/18 11:18	Prepared:	12/03/18 08:57	Analyzed:	12/03/18 19:28
Solids:	83.16	Preparation:	3050_METALS_PREP	Dilution:	100
Initial/Final:	2.1361 g / 50 ml				
Batch:	B8L0013	Sequence:	S8L0021	Calibration:	EL80003
				Instrument:	ICP-AES 7400

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7429-90-5	Aluminum	17500	265	563	704	D
7439-89-6	Iron	18800	104	225	281	D

MW 12/31/18

# 1 - FORM I ANALYSIS DATA SHEET

18111111

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Subsurface Soil	Laboratory ID:	18K0933-02RE2
		File ID:	12032018-104
Sampled:	11/28/18 09:20	Prepared:	12/03/18 08:57
		Analyzed:	12/03/18 21:24
Solids:	84.86	Preparation:	3050_METALS_PREP
		Dilution:	1
Initial/Final:	2.1678 g / 50 ml		
Batch:	B8L0013	Sequence:	S8L0021
		Calibration:	EL80003
		Instrument:	ICP-AES 7400

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7440-36-0	Antimony		0.489	1.09	1.36	U JL
7440-39-3	Barium	84.8	0.381	1.09	1.36	
7440-41-7	Beryllium		0.0544	0.109	0.136	U
7440-48-4	Cobalt	7.21	0.0815	0.272	1.36	
7440-50-8	Copper	20.2	0.527	1.09	1.36	
7439-96-5	Manganese	221 JL	0.272	0.544	1.36	
7440-02-0	Nickel	21.8	0.489	1.09	1.36	
7440-09-7	Potassium	790	2.28	5.44	6.79	
7782-49-2	Selenium		0.489	1.09	1.36	U
7440-23-5	Sodium	107	2.45	5.44	6.79	
7440-62-2	Vanadium	46.9	0.326	1.09	1.36	
7440-66-6	Zinc	21.1 JH	0.544	1.09	1.36	

JW 12-31-18



# 1 - FORM I ANALYSIS DATA SHEET

18111112

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Subsurface Soil	Laboratory ID:	18K0933-03RE1
		File ID:	12032018-093
Sampled:	11/28/18 11:18	Prepared:	12/03/18 08:57
		Analyzed:	12/03/18 20:37
Solids:	83.16	Preparation:	3050_METALS_PREP
		Dilution:	10
Initial/Final:	2.1361 g / 50 ml		
Batch:	B8L0013	Sequence:	S8L0021
		Calibration:	EL80003
		Instrument:	ICP-AES 7400

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7440-38-2	Arsenic	9.32	5.07	11.3	14.1	J, <i>Am Q</i>
7440-43-9	Cadmium		0.507	1.13	1.41	U
7440-70-2	Calcium	2390	28.1	56.3	70.4	D
7440-47-3	Chromium	34.9	3.10	11.3	14.1	<i>Am</i>
7439-92-1	Lead		5.63	11.3	14.1	U
7439-95-4	Magnesium	5540	19.1	56.3	70.4	D
7440-22-4	Silver	6.14	0.901	2.81	14.1	J, D <i>Q</i>
7440-28-0	Thallium	4.95	3.72	11.3	14.1	J, D <i>Q</i>

*MW 12-31-18*

# 1 - FORM I

## ANALYSIS DATA SHEET

18111112

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Subsurface Soil	Laboratory ID:	18K0933-03RE2
Sampled:	11/28/18 11:18	Prepared:	12/03/18 08:57
Solids:	83.16	Preparation:	3050_METALS_PREP
Initial/Final:	2.1361 g / 50 ml	Analyzed:	12/03/18 21:28
Batch:	B8L0013	Dilution:	1
Sequence:	S8L0021	Calibration:	EL80003
		Instrument:	ICP-AES 7400

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7440-36-0	Antimony		0.507	1.13	1.41	U <i>JL</i>
7440-39-3	Barium	104	0.394	1.13	1.41	
7440-41-7	Beryllium		0.0563	0.113	0.141	U
7440-48-4	Cobalt	8.02	0.0844	0.281	1.41	
7440-50-8	Copper	26.2	0.546	1.13	1.41	
7439-96-5	Manganese	276 <i>JL</i>	0.281	0.563	1.41	
7440-02-0	Nickel	28.1	0.507	1.13	1.41	
7440-09-7	Potassium	929	2.36	5.63	7.04	
7782-49-2	Selenium		0.507	1.13	1.41	U
7440-23-5	Sodium	114	2.53	5.63	7.04	
7440-62-2	Vanadium	50.4	0.338	1.13	1.41	
7440-66-6	Zinc	27.7 <i>JH</i>	0.563	1.13	1.41	

*JAW 12-31-18*

**1 - FORM I**  
**ANALYSIS DATA SHEET**

18111113

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB				
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01				
Matrix:	Subsurface Soil	Laboratory ID:	18K0933-04	File ID:	12032018-077		
Sampled:	11/28/18 13:50	Prepared:	12/03/18 08:57	Analyzed:	12/03/18 19:32		
Solids:	80.84	Preparation:	3050_METALS_PREP	Dilution:	100		
Initial/Final:	2.1368 g / 50 ml						
Batch:	B8L0013	Sequence:	S8L0021	Calibration:	EL80003	Instrument:	ICP-AES 7400

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7429-90-5	Aluminum	19500	272	579	724	D
7439-89-6	Iron	15500	107	232	289	D

MW 12-31-18

# 1 - FORM I ANALYSIS DATA SHEET

18111113

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Subsurface Soil	Laboratory ID:	18K0933-04RE1
		File ID:	12032018-098
Sampled:	11/28/18 13:50	Prepared:	12/03/18 08:57
		Analyzed:	12/03/18 20:58
Solids:	80.84	Preparation:	3050_METALS_PREP
		Dilution:	10
Initial/Final:	2.1368 g / 50 ml		
Batch:	B8L0013	Sequence:	S8L0021
		Calibration:	EL80003
		Instrument:	ICP-AES 7400

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7440-38-2	Arsenic	6.46	5.21	11.6	14.5	J, D <i>me Q</i>
7440-43-9	Cadmium		0.521	1.16	1.45	U
7440-70-2	Calcium	3030	28.9	57.9	72.4	D
7440-47-3	Chromium	25.8	3.18	11.6	14.5	D <i>W</i>
7439-92-1	Lead		5.79	11.6	14.5	U
7439-95-4	Magnesium	3630	19.7	57.9	72.4	D
7440-22-4	Silver	3.85	0.926	2.89	14.5	J, D <i>Q</i>
7440-28-0	Thallium	5.09	3.82	11.6	14.5	J, D <i>Q</i>

*mw 12-31-18*



# 1 - FORM I

## ANALYSIS DATA SHEET

18111113

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Subsurface Soil	Laboratory ID:	18K0933-04RE2
		File ID:	12032018-106
Sampled:	11/28/18 13:50	Prepared:	12/03/18 08:57
		Analyzed:	12/03/18 21:32
Solids:	80.84	Preparation:	3050_METALS_PREP
		Dilution:	1
Initial/Final:	2.1368 g / 50 ml		
Batch:	B8L0013	Sequence:	S8L0021
		Calibration:	EL80003
		Instrument:	ICP-AES 7400

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7440-36-0	Antimony		0.521	1.16	1.45	U JL
7440-39-3	Barium	103	0.405	1.16	1.45	
7440-41-7	Beryllium		0.0579	0.116	0.145	U
7440-47-3	Chromium	24.8	0.318	1.16	1.45	
7440-48-4	Cobalt	6.12	0.0868	0.289	1.45	
7440-50-8	Copper	17.4	0.562	1.16	1.45	
7439-96-5	Manganese	186 JL	0.289	0.579	1.45	
7440-02-0	Nickel	23.7	0.521	1.16	1.45	
7440-09-7	Potassium	602	2.43	5.79	7.24	
7782-49-2	Selenium		0.521	1.16	1.45	U
7440-23-5	Sodium	125	2.61	5.79	7.24	
7440-62-2	Vanadium	37.8	0.347	1.16	1.45	
7440-66-6	Zinc	25.4 JH	0.579	1.16	1.45	

JW 12-31-18



**1 - FORM I**  
**ANALYSIS DATA SHEET**

18111101

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Soil	Laboratory ID:	18K0755-01
Sampled:	11/19/18 00:00	Prepared:	11/28/18 07:20
Solids:	78.64	Preparation:	7471_HG_PREP
Initial/Final:	0.5108 g / 50 ml	Analyzed:	11/28/18 11:20
Batch:	B8K0848	Dilution:	1
Sequence:	S8K0425	Calibration:	EK80068
Instrument:	Hg Hydra		

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7439-97-6	Mercury	0.079	0.025	0.050	0.075	

*MM 12-31-18*

**1 - FORM I**  
**ANALYSIS DATA SHEET**

18111103

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB				
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01				
Matrix:	Soil	Laboratory ID:	18K0755-02	File ID:	112818S-027		
Sampled:	11/19/18 00:00	Prepared:	11/28/18 07:20	Analyzed:	11/28/18 11:28		
Solids:	72.73	Preparation:	7471_HG_PREP	Dilution:	1		
Initial/Final:	0.5148 g / 50 ml						
Batch:	B8K0848	Sequence:	S8K0425	Calibration:	EK80068	Instrument:	Hg Hydra

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7439-97-6	Mercury	0.092	0.027	0.053	0.080	

*Jan 12-31-18*

**1 - FORM I**  
**ANALYSIS DATA SHEET**

18111105

Laboratory:	Environmental Monitoring and Tech			SDG:	10RB
Client:	Ecology and Environment, Inc.			Project:	1004530.0470.001.01
Matrix:	Soil	Laboratory ID:	18K0902-01	File ID:	113018S-013
Sampled:	11/27/18 00:00	Prepared:	11/30/18 08:50	Analyzed:	11/30/18 12:58
Solids:	82.99	Preparation:	7471_HG_PREP	Dilution:	1
Initial/Final:	0.5233 g / 50 ml				
Batch:	B8K0954	Sequence:	S8K0472	Calibration:	EK80076
				Instrument:	Hg Hydra

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7439-97-6	Mercury	0.033	0.023	0.046	0.069	JQ

mw 12-31-18



**1 - FORM I**  
**ANALYSIS DATA SHEET**

18111106

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB				
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01				
Matrix:	Soil	Laboratory ID:	18K0902-02	File ID:	113018S-014		
Sampled:	11/27/18 00:00	Prepared:	11/30/18 08:50	Analyzed:	11/30/18 13:01		
Solids:	79.21	Preparation:	7471_HG_PREP	Dilution:	1		
Initial/Final:	0.5028 g / 50 ml						
Batch:	B8K0954	Sequence:	S8K0472	Calibration:	EK80076	Instrument:	Hg Hydra

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7439-97-6	Mercury	0.069	0.025	0.050	0.075	J <i>Q</i>

*MW 12-3-18*

**1 - FORM I**  
**ANALYSIS DATA SHEET**

18111107

Laboratory:	Environmental Monitoring and Tech			SDG:	10RB
Client:	Ecology and Environment, Inc.			Project:	1004530.0470.001.01
Matrix:	Soil	Laboratory ID:	18K0902-03	File ID:	113018S-015
Sampled:	11/27/18 00:00	Prepared:	11/30/18 08:50	Analyzed:	11/30/18 13:03
Solids:	78.48	Preparation:	7471_HG_PREP	Dilution:	1
Initial/Final:	0.5274 g / 50 ml				
Batch:	B8K0954	Sequence:	S8K0472	Calibration:	EK80076
				Instrument:	Hg Hydra

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7439-97-6	Mercury	0.037	0.024	0.048	0.072	J Q

MWF-3-18

**1 - FORM I**  
**ANALYSIS DATA SHEET**

18111108

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB				
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01				
Matrix:	Soil	Laboratory ID:	18K0902-04	File ID:	113018S-021		
Sampled:	11/27/18 00:00	Prepared:	11/30/18 08:50	Analyzed:	11/30/18 13:20		
Solids:	77.87	Preparation:	7471_HG_PREP	Dilution:	1		
Initial/Final:	0.5353 g / 50 ml						
Batch:	B8K0954	Sequence:	S8K0472	Calibration:	EK80076	Instrument:	Hg Hydra

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7439-97-6	Mercury	0.074	0.024	0.048	0.072	

*Mm* 12-31-18

**1 - FORM I**  
**ANALYSIS DATA SHEET**

18111110

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB				
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01				
Matrix:	Subsurface Soil	Laboratory ID:	18K0933-01	File ID:	120418S-012		
Sampled:	11/28/18 08:20	Prepared:	12/04/18 08:30	Analyzed:	12/04/18 11:35		
Solids:	85.56	Preparation:	7471_HG_PREP	Dilution:	1		
Initial/Final:	0.5387 g / 50 ml						
Batch:	B8L0069	Sequence:	S8L0033	Calibration:	EL80005	Instrument:	Hg Hydra

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7439-97-6	Mercury	0.022	0.022	0.043	0.065	J Q

MW12-3148

**1 - FORM I**  
**ANALYSIS DATA SHEET**

18111111

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Subsurface Soil	Laboratory ID:	18K0933-02
		File ID:	120418S-015
Sampled:	11/28/18 09:20	Prepared:	12/04/18 08:30
		Analyzed:	12/04/18 11:49
Solids:	84.86	Preparation:	7471_HG_PREP
		Dilution:	1
Initial/Final:	0.5384 g / 50 ml		
Batch:	B8L0069	Sequence:	S8L0033
		Calibration:	EL80005
		Instrument:	Hg Hydra

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7439-97-6	Mercury		0.022	0.044	0.066	U

MW 12-31-18



**1 - FORM I**  
**ANALYSIS DATA SHEET**

18111112

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB				
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01				
Matrix:	Subsurface Soil	Laboratory ID:	18K0933-03	File ID:	120418S-016		
Sampled:	11/28/18 11:18	Prepared:	12/04/18 08:30	Analyzed:	12/04/18 11:51		
Solids:	83.16	Preparation:	7471_HG_PREP	Dilution:	1		
Initial/Final:	0.5374 g / 50 ml						
Batch:	B8L0069	Sequence:	S8L0033	Calibration:	EL80005	Instrument:	Hg Hydra

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7439-97-6	Mercury		0.022	0.045	0.067	U

*Handwritten signature:* JMW/2-3H8

**1 - FORM I**  
**ANALYSIS DATA SHEET**

18111113

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB				
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01				
Matrix:	Subsurface Soil	Laboratory ID:	18K0933-04	File ID:	120418S-017		
Sampled:	11/28/18 13:50	Prepared:	12/04/18 08:30	Analyzed:	12/04/18 11:53		
Solids:	80.84	Preparation:	7471_HG_PREP	Dilution:	1		
Initial/Final:	0.5024 g / 50 ml						
Batch:	B8L0069	Sequence:	S8L0033	Calibration:	EL80005	Instrument:	Hg Hydra

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7439-97-6	Mercury		0.025	0.049	0.074	U

*MW 12-31-18*



## ecology and environment, inc.

Global Environmental Specialists

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### MEMORANDUM

DATE: January 28, 2019

TO: Steve Hall, START-IV Project Manager, E & E, Seattle, Washington

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington *MW*

SUBJ: **Organic Data Quality Assurance Review, May Creek Removal Action Site, Renton, Washington**

REF: TO: TO-68HE0718F0470 PAN: 1004530.0470.001.01

The data quality assurance review of 10 soil samples collected from the May Creek Removal Action site located in Renton, Washington, has been completed. Analyses for Chlorinated Pesticides (EPA Method 8081) and Polychlorinated Biphenyls (PCBs - EPA Method 8082) were performed by Environmental Monitoring and Technologies, Inc., Morton Grove, Illinois. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Manual Process (S2B/4VM).

The samples were numbered:

18111101	18111103	18111105	18111106	18111107
18111108	18111110	18111111	18111112	18111113

#### Data Qualifications:

**1. Sample Holding Times: Acceptable.**

The samples were maintained at 0°C to 6°C. The samples were collected between November 19 and 28, 2018, extracted on November 26 and 30, 2018, and were analyzed by December 4, 2018, therefore meeting QC criteria of less than 14 days between collection and soil sample extraction and less than 40 days between extraction and analysis. There are no holding time limits for Method 8082 PCBs.

**2. Instrument Performance: Acceptable.**

The surrogate retention time percent difference between the initial calibration standards and the remaining standards and samples was  $\leq 0.3\%$  for capillary column analyses.

**3. Initial and Continuing Calibration: Satisfactory.**

All initial calibration relative standard deviations (RSDs) were within QC limits. All continuing calibration % differences (% D) were within QC limits except one high PCB SMC result; no actions were taken based on this outlier as all PCB SMC sample results were within QC limits.

**4. Blanks: Acceptable.**

A method blank was prepared at the required frequency of every time samples were extracted for



each matrix and for each concentration level, or every 20 samples, whichever is greater, and for each analytical system. No target analytes were detected in the laboratory blanks.

**5. Performance Evaluation Samples: Not Provided.**

Performance evaluation samples were not provided to the laboratory.

**6. System Monitoring Compounds (SMCs): Satisfactory.**

All recoveries of the SMCs were within QC limits except low outliers in samples 18111101 and 18111103 and the associated MS/MSD analyses. Associated sample quantitation limits were qualified as estimated quantities with a low bias (UJL).

**7. Blank Spike (BS) Analyses: Acceptable.**

BS recoveries were within QC limits.

**8. Matrix Spike (MS) and MS Duplicate (MSD) Analyses: Satisfactory.**

MS and MSD recoveries were within QC limits except for results associated with samples 18111101 and 18111103. No additional actions were taken based on these outliers.

**9. Duplicates: Acceptable.**

Relative Percent Differences (RPDs) of all spiked analytes were within the required control limits.

**10. Compound Identification: Acceptable.**

All positive sample results were dual-column confirmed with differences between the columns less than 25%.

**11. Target Compound Quantitation and Quantitation Limits: Acceptable.**

Sample results and quantitation limits were correctly calculated.

**12. Laboratory Contact**

No laboratory contact was required.

**13. Overall Assessment**

A total of 270 results were validated in this data memorandum. No sample results were qualified as estimated quantities (J) based on duplicate precision outliers, holding time outliers, incorrect sample containers, or sample temperature outliers. No sample results were rejected (R). A total of 40 sample results were qualified as estimated quantities (UJ) based on spike accuracy outliers.

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result. This updated memorandum provides additional results that weren't provided in the original submittal.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the analytical method(s), the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, and/or the Office of Emergency and Remedial Response Publication "National Functional Guidelines for Superfund Organic





Methods Data Review, January 2017". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

#### Data Qualifiers and Definitions

- H - The sample result is biased high.
- J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
- K - The bias of the sample is not known.
- L - The sample result is biased low.
- Q - Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.
- R - The data is rejected and unusable. The analyte may or may not be present in the sample.
- U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.



# 1 - FORM I ANALYSIS DATA SHEET

18111101

Laboratory:	Environmental Monitoring and Technologies, Inc	SDG:	10RB
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Soil	Laboratory ID:	18K0755-01
		File ID:	U18K28015
Sampled:	11/19/18 00:00	Prepared:	11/26/18 16:59
		Analyzed:	11/28/18 16:43
Solids:	78.64	Preparation:	3546_P
		Dilution:	1
Batch:	B8K0796	Sequence:	S8K0449
		Calibration:	EK80073
		Instrument:	U

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
72-54-8	4,4'-DDD		0.662	2.50	5.00	U
72-54-8	4,4'-DDD [2C]		0.662	2.50	5.00	U
72-55-9	4,4'-DDE		0.500	1.25	5.00	U
72-55-9	4,4'-DDE [2C]		0.500	1.25	5.00	U
50-29-3	4,4'-DDT		0.487	1.25	5.00	U
50-29-3	4,4'-DDT [2C]		0.487	1.25	5.00	U
309-00-2	Aldrin		0.425	1.25	5.00	U
309-00-2	Aldrin [2C]		0.425	1.25	5.00	U
319-84-6	alpha-BHC		0.475	1.25	5.00	U
319-84-6	alpha-BHC [2C]		0.475	1.25	5.00	U
5103-71-9	alpha-Chlordane		0.725	2.50	5.00	U
5103-71-9	alpha-Chlordane [2C]		0.725	2.50	5.00	U
319-85-7	beta-BHC		1.24	2.50	9.99	U
319-85-7	beta-BHC [2C]		1.24	2.50	9.99	U
319-86-8	delta-BHC		1.90	2.50	9.99	U
319-86-8	delta-BHC [2C]		1.90	2.50	9.99	U
60-57-1	Dieldrin		0.487	1.25	5.00	U
60-57-1	Dieldrin [2C]		0.487	1.25	5.00	U
959-98-8	Endosulfan I		0.450	1.25	5.00	U
959-98-8	Endosulfan I [2C]		0.450	1.25	5.00	U
33213-65-9	Endosulfan II		0.937	2.50	5.00	U
33213-65-9	Endosulfan II [2C]		0.937	2.50	5.00	U
1031-07-8	Endosulfan sulfate		1.75	5.00	9.99	U
1031-07-8	Endosulfan sulfate [2C]		1.75	5.00	9.99	U
72-20-8	Endrin		0.487	2.50	5.00	U
72-20-8	Endrin [2C]		0.487	2.50	5.00	U
7421-93-4	Endrin aldehyde		2.04	5.00	9.99	U
7421-93-4	Endrin aldehyde [2C]		2.04	5.00	9.99	U
53494-70-5	Endrin ketone		1.49	5.00	9.99	U
53494-10-5	Endrin ketone [2C]		1.49	5.00	9.99	U

11-28-19

# 1 - FORM I ANALYSIS DATA SHEET

18111101

Laboratory:	Environmental Monitoring and Technologies, Inc	SDG:	10RB
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Soil	Laboratory ID:	18K0755-01
		File ID:	U18K28015
Sampled:	11/19/18 00:00	Prepared:	11/26/18 16:59
		Analyzed:	11/28/18 16:43
Solids:	78.64	Preparation:	3546_P
		Dilution:	1
Batch:	B8K0796	Sequence:	S8K0449
		Calibration:	EK80073
		Instrument:	U

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
58-89-9	<i>gamma-BHC</i>	0.550	2.50	5.00	U	JU ↓
58-89-9	<i>gamma-BHC [2C]</i>	0.550	2.50	5.00	U	
5566-34-7	<i>gamma-Chlordane</i>	0.587	2.50	5.00	U	
5566-34-7	<i>gamma-Chlordane [2C]</i>	0.587	2.50	5.00	U	
76-44-8	<i>Heptachlor</i>	0.537	2.50	5.00	U	
76-44-8	<i>Heptachlor [2C]</i>	0.537	2.50	5.00	U	
1024-57-3	<i>Heptachlor epoxide</i>	0.537	2.50	5.00	U	
1024-57-3	<i>Heptachlor epoxide [2C]</i>	0.537	2.50	5.00	U	
72-43-5	<i>Methoxychlor</i>	0.662	2.50	5.00	U	
72-43-5	<i>Methoxychlor [2C]</i>	0.662	2.50	5.00	U	
8001-35-2	<i>Toxaphene</i>	109	250	625	U	
8001-35-2	<i>Toxaphene [2C]</i>	109	250	625	U	

Italicized = secondary result

mm 12/19



# 1 - FORM I ANALYSIS DATA SHEET

18111103

Laboratory:	Environmental Monitoring and Technologies, Inc	SDG:	10RB
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Soil	Laboratory ID:	18K0755-02
		File ID:	U18K28016
Sampled:	11/19/18 00:00	Prepared:	11/26/18 16:59
		Analyzed:	11/28/18 16:59
Solids:	72.73	Preparation:	3546_P
		Dilution:	1
Batch:	B8K0796	Sequence:	S8K0449
		Calibration:	EK80073
		Instrument:	U

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
72-54-8	4,4'-DDD	0.710	2.68	5.36	U	JL
72-54-8	4,4'-DDD [2C]	0.710	2.68	5.36	U	
72-55-9	4,4'-DDE	0.536	1.34	5.36	U	
72-55-9	4,4'-DDE [2C]	0.536	1.34	5.36	U	
50-29-3	4,4'-DDT	0.522	1.34	5.36	U	
50-29-3	4,4'-DDT [2C]	0.522	1.34	5.36	U	
309-00-2	Aldrin	0.455	1.34	5.36	U	
309-00-2	Aldrin [2C]	0.455	1.34	5.36	U	
319-84-6	alpha-BHC	0.509	1.34	5.36	U	
319-84-6	alpha-BHC [2C]	0.509	1.34	5.36	U	
5103-71-9	alpha-Chlordane	0.777	2.68	5.36	U	
5103-71-9	alpha-Chlordane [2C]	0.777	2.68	5.36	U	
319-85-7	beta-BHC	1.33	2.68	10.7	U	
319-85-7	beta-BHC [2C]	1.33	2.68	10.7	U	
319-86-8	delta-BHC	2.04	2.68	10.7	U	
319-86-8	delta-BHC [2C]	2.04	2.68	10.7	U	
60-57-1	Dieldrin	0.522	1.34	5.36	U	
60-57-1	Dieldrin [2C]	0.522	1.34	5.36	U	
959-98-8	Endosulfan I	0.482	1.34	5.36	U	
959-98-8	Endosulfan I [2C]	0.482	1.34	5.36	U	
33213-65-9	Endosulfan II	1.00	2.68	5.36	U	
33213-65-9	Endosulfan II [2C]	1.00	2.68	5.36	U	
1031-07-8	Endosulfan sulfate	1.87	5.36	10.7	U	
1031-07-8	Endosulfan sulfate [2C]	1.87	5.36	10.7	U	
72-20-8	Endrin	0.522	2.68	5.36	U	
72-20-8	Endrin [2C]	0.522	2.68	5.36	U	
7421-93-4	Endrin aldehyde	2.18	5.36	10.7	U	
7421-93-4	Endrin aldehyde [2C]	2.18	5.36	10.7	U	
53494-70-5	Endrin ketone	1.59	5.36	10.7	U	
53494-10-5	Endrin ketone [2C]	1.59	5.36	10.7	U	

11/28/19

# 1 - FORM I ANALYSIS DATA SHEET

18111103

Laboratory:	Environmental Monitoring and Technologies, Inc	SDG:	10RB
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Soil	Laboratory ID:	18K0755-02
		File ID:	U18K28016
Sampled:	11/19/18 00:00	Prepared:	11/26/18 16:59
		Analyzed:	11/28/18 16:59
Solids:	72.73	Preparation:	3546_P
		Dilution:	1
Batch:	B8K0796	Sequence:	S8K0449
		Calibration:	EK80073
		Instrument:	U

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
58-89-9	<i>gamma-BHC</i>		0.589	2.68	5.36	U <i>HL</i>
58-89-9	gamma-BHC [2C]		0.589	2.68	5.36	U
5566-34-7	<i>gamma-Chlordane</i>		0.629	2.68	5.36	U
5566-34-7	gamma-Chlordane [2C]		0.629	2.68	5.36	U
76-44-8	<i>Heptachlor</i>		0.576	2.68	5.36	U
76-44-8	Heptachlor [2C]		0.576	2.68	5.36	U
1024-57-3	<i>Heptachlor epoxide</i>		0.576	2.68	5.36	U
1024-57-3	Heptachlor epoxide [2C]		0.576	2.68	5.36	U
72-43-5	<i>Methoxychlor</i>		0.710	2.68	5.36	U
72-43-5	Methoxychlor [2C]		0.710	2.68	5.36	U
8001-35-2	<i>Toxaphene</i>		117	268	669	U
8001-35-2	Toxaphene [2C]		117	268	669	U

Italicized = secondary result

*MW 12-19*

# 1 - FORM I

## ANALYSIS DATA SHEET

18111105

Laboratory:	Environmental Monitoring and Technologies, Inc	SDG:	10RB
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Subsurface Soil	Laboratory ID:	18K0902-01
Sampled:	11/27/18 00:00	Prepared:	11/30/18 15:37
Solids:	82.99	Preparation:	3546_P
Batch:	B8K0979	Sequence:	S8L0045
		Calibration:	EL80034
		Dilution:	1
		Instrument:	U

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
72-54-8	4,4'-DDD		0.583	2.20	4.40	U
72-55-9	4,4'-DDE		0.440	1.10	4.40	U
50-29-3	4,4'-DDT		0.429	1.10	4.40	U
309-00-2	Aldrin		0.374	1.10	4.40	U
319-84-6	alpha-BHC		0.418	1.10	4.40	U
5103-71-9	alpha-Chlordane		0.638	2.20	4.40	U
319-85-7	beta-BHC		1.09	2.20	8.80	U
319-86-8	delta-BHC		1.67	2.20	8.80	U
60-57-1	Dieldrin		0.429	1.10	4.40	U
959-98-8	Endosulfan I		0.396	1.10	4.40	U
33213-65-9	Endosulfan II		0.825	2.20	4.40	U
1031-07-8	Endosulfan sulfate		1.54	4.40	8.80	U
72-20-8	Endrin		0.429	2.20	4.40	U
7421-93-4	Endrin aldehyde		1.79	4.40	8.80	U
53494-70-5	Endrin ketone		1.31	4.40	8.80	U
58-89-9	gamma-BHC		0.484	2.20	4.40	U
5566-34-7	gamma-Chlordane		0.517	2.20	4.40	U
76-44-8	Heptachlor		0.473	2.20	4.40	U
1024-57-3	Heptachlor epoxide		0.473	2.20	4.40	U
72-43-5	Methoxychlor		0.583	2.20	4.40	U
8001-35-2	Toxaphene		96.3	220	550	U

Italicized = secondary result

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# 1 - FORM I

## ANALYSIS DATA SHEET

18111106

Laboratory:	Environmental Monitoring and Technologies, Inc	SDG:	10RB
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Subsurface Soil	Laboratory ID:	18K0902-02
		File ID:	U18L04010
Sampled:	11/27/18 00:00	Prepared:	11/30/18 15:37
		Analyzed:	12/04/18 19:22
Solids:	79.21	Preparation:	3546_P
		Dilution:	1
Batch:	B8K0979	Sequence:	S8L0045
		Calibration:	EL80034
		Instrument:	U

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
72-54-8	4,4'-DDD		0.621	2.34	4.69	U
72-55-9	4,4'-DDE		0.469	1.17	4.69	U
50-29-3	4,4'-DDT		0.457	1.17	4.69	U
309-00-2	Aldrin		0.398	1.17	4.69	U
319-84-6	alpha-BHC		0.445	1.17	4.69	U
5103-71-9	alpha-Chlordane		0.680	2.34	4.69	U
319-85-7	beta-BHC		1.16	2.34	9.38	U
319-86-8	delta-BHC		1.78	2.34	9.38	U
60-57-1	Dieldrin		0.457	1.17	4.69	U
959-98-8	Endosulfan I		0.422	1.17	4.69	U
33213-65-9	Endosulfan II		0.879	2.34	4.69	U
1031-07-8	Endosulfan sulfate		1.64	4.69	9.38	U
72-20-8	Endrin		0.457	2.34	4.69	U
7421-93-4	Endrin aldehyde		1.91	4.69	9.38	U
53494-70-5	Endrin ketone		1.39	4.69	9.38	U
58-89-9	gamma-BHC		0.516	2.34	4.69	U
5566-34-7	gamma-Chlordane		0.551	2.34	4.69	U
76-44-8	Heptachlor		0.504	2.34	4.69	U
1024-57-3	Heptachlor epoxide		0.504	2.34	4.69	U
72-43-5	Methoxychlor		0.621	2.34	4.69	U
8001-35-2	Toxaphene		103	234	586	U

Italicized = secondary result

*mw 128-19*

# 1 - FORM I

## ANALYSIS DATA SHEET

18111107

Laboratory:	Environmental Monitoring and Technologies, Inc	SDG:	10RB
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Subsurface Soil	Laboratory ID:	18K0902-03
		File ID:	U18L04008
Sampled:	11/27/18 00:00	Prepared:	11/30/18 15:37
		Analyzed:	12/04/18 18:49
Solids:	78.48	Preparation:	3546_P
		Dilution:	1
Batch:	B8K0979	Sequence:	S8L0045
		Calibration:	EL80034
		Instrument:	U

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
72-54-8	4,4'-DDD		0.644	2.43	4.86	U
72-55-9	4,4'-DDE		0.486	1.22	4.86	U
50-29-3	4,4'-DDT		0.474	1.22	4.86	U
309-00-2	Aldrin		0.413	1.22	4.86	U
319-84-6	alpha-BHC		0.462	1.22	4.86	U
5103-71-9	alpha-Chlordane		0.705	2.43	4.86	U
319-85-7	beta-BHC		1.20	2.43	9.72	U
319-86-8	delta-BHC		1.85	2.43	9.72	U
60-57-1	Dieldrin		0.474	1.22	4.86	U
959-98-8	Endosulfan I		0.438	1.22	4.86	U
33213-65-9	Endosulfan II		0.912	2.43	4.86	U
1031-07-8	Endosulfan sulfate		1.70	4.86	9.72	U
72-20-8	Endrin		0.474	2.43	4.86	U
7421-93-4	Endrin aldehyde		1.98	4.86	9.72	U
53494-70-5	Endrin ketone		1.45	4.86	9.72	U
58-89-9	gamma-BHC		0.535	2.43	4.86	U
5566-34-7	gamma-Chlordane		0.571	2.43	4.86	U
76-44-8	Heptachlor		0.523	2.43	4.86	U
1024-57-3	Heptachlor epoxide		0.523	2.43	4.86	U
72-43-5	Methoxychlor		0.644	2.43	4.86	U
8001-35-2	Toxaphene		106	243	608	U

Italicized = secondary result

*12/18/19*



# 1 - FORM I

## ANALYSIS DATA SHEET

18111108

Laboratory:	Environmental Monitoring and Technologies, Inc	SDG:	10RB
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Subsurface Soil	Laboratory ID:	18K0902-04
		File ID:	U18L04011
Sampled:	11/27/18 00:00	Prepared:	11/30/18 15:37
		Analyzed:	12/04/18 19:39
Solids:	77.87	Preparation:	3546_P
		Dilution:	1
Batch:	B8K0979	Sequence:	S8L0045
		Calibration:	EL80034
		Instrument:	U

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
72-54-8	4,4'-DDD		0.646	2.44	4.87	U
72-55-9	4,4'-DDE		0.487	1.22	4.87	U
50-29-3	4,4'-DDT		0.475	1.22	4.87	U
309-00-2	Aldrin		0.414	1.22	4.87	U
319-84-6	alpha-BHC		0.463	1.22	4.87	U
5103-71-9	alpha-Chlordane		0.707	2.44	4.87	U
319-85-7	beta-BHC		1.21	2.44	9.75	U
319-86-8	delta-BHC		1.85	2.44	9.75	U
60-57-1	Dieldrin		0.475	1.22	4.87	U
959-98-8	Endosulfan I		0.439	1.22	4.87	U
33213-65-9	Endosulfan II		0.914	2.44	4.87	U
1031-07-8	Endosulfan sulfate		1.71	4.87	9.75	U
72-20-8	Endrin		0.475	2.44	4.87	U
7421-93-4	Endrin aldehyde		1.99	4.87	9.75	U
53494-70-5	Endrin ketone		1.45	4.87	9.75	U
58-89-9	gamma-BHC		0.536	2.44	4.87	U
5566-34-7	gamma-Chlordane		0.573	2.44	4.87	U
76-44-8	Heptachlor		0.524	2.44	4.87	U
1024-57-3	Heptachlor epoxide		0.524	2.44	4.87	U
72-43-5	Methoxychlor		0.646	2.44	4.87	U
8001-35-2	Toxaphene		107	244	609	U

Italicized = secondary result

*mw 12-19*

# 1 - FORM I

## ANALYSIS DATA SHEET

18111110

Laboratory:	Environmental Monitoring and Technologies, Inc	SDG:	10RB
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Subsurface Soil	Laboratory ID:	18K0933-01
		File ID:	U18L04012
Sampled:	11/28/18 08:20	Prepared:	11/30/18 15:37
		Analyzed:	12/04/18 19:55
Solids:	85.56	Preparation:	3546_P
		Dilution:	1
Batch:	B8K0979	Sequence:	S8L0045
		Calibration:	EL80034
		Instrument:	U

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
72-54-8	4,4'-DDD		0.595	2.25	4.49	U
72-55-9	4,4'-DDE		0.449	1.12	4.49	U
50-29-3	4,4'-DDT		0.438	1.12	4.49	U
309-00-2	Aldrin		0.382	1.12	4.49	U
319-84-6	alpha-BHC		0.427	1.12	4.49	U
5103-71-9	alpha-Chlordane		0.651	2.25	4.49	U
319-85-7	beta-BHC		1.11	2.25	8.98	U
319-86-8	delta-BHC		1.71	2.25	8.98	U
60-57-1	Dieldrin		0.438	1.12	4.49	U
959-98-8	Endosulfan I		0.404	1.12	4.49	U
33213-65-9	Endosulfan II		0.842	2.25	4.49	U
1031-07-8	Endosulfan sulfate		1.57	4.49	8.98	U
72-20-8	Endrin		0.438	2.25	4.49	U
7421-93-4	Endrin aldehyde		1.83	4.49	8.98	U
53494-70-5	Endrin ketone		1.34	4.49	8.98	U
58-89-9	gamma-BHC		0.494	2.25	4.49	U
5566-34-7	gamma-Chlordane		0.528	2.25	4.49	U
76-44-8	Heptachlor		0.483	2.25	4.49	U
1024-57-3	Heptachlor epoxide		0.483	2.25	4.49	U
72-43-5	Methoxychlor		0.595	2.25	4.49	U
8001-35-2	Toxaphene		98.3	225	562	U

Italicized = secondary result

*MW (28-19)*

# 1 - FORM I

## ANALYSIS DATA SHEET

18111111

Laboratory:	Environmental Monitoring and Technologies, Inc	SDG:	10RB
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Subsurface Soil	Laboratory ID:	18K0933-02
		File ID:	U18L04013
Sampled:	11/28/18 09:20	Prepared:	11/30/18 15:37
		Analyzed:	12/04/18 20:12
Solids:	84.86	Preparation:	3546_P
		Dilution:	1
Batch:	B8K0979	Sequence:	S8L0045
		Calibration:	EL80034
		Instrument:	U

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
72-54-8	4,4'-DDD		0.583	2.20	4.40	U
72-55-9	4,4'-DDE		0.440	1.10	4.40	U
50-29-3	4,4'-DDT		0.429	1.10	4.40	U
309-00-2	Aldrin		0.374	1.10	4.40	U
319-84-6	alpha-BHC		0.418	1.10	4.40	U
5103-71-9	alpha-Chlordane		0.638	2.20	4.40	U
319-85-7	beta-BHC		1.09	2.20	8.80	U
319-86-8	delta-BHC		1.67	2.20	8.80	U
60-57-1	Dieldrin		0.429	1.10	4.40	U
959-98-8	Endosulfan I		0.396	1.10	4.40	U
33213-65-9	Endosulfan II		0.825	2.20	4.40	U
1031-07-8	Endosulfan sulfate		1.54	4.40	8.80	U
72-20-8	Endrin		0.429	2.20	4.40	U
7421-93-4	Endrin aldehyde		1.79	4.40	8.80	U
53494-70-5	Endrin ketone		1.31	4.40	8.80	U
58-89-9	gamma-BHC		0.484	2.20	4.40	U
5566-34-7	gamma-Chlordane		0.517	2.20	4.40	U
76-44-8	Heptachlor		0.473	2.20	4.40	U
1024-57-3	Heptachlor epoxide		0.473	2.20	4.40	U
72-43-5	Methoxychlor		0.583	2.20	4.40	U
8001-35-2	Toxaphene		96.2	220	550	U

Italicized = secondary result

# 1 - FORM I

## ANALYSIS DATA SHEET

18111112

Laboratory:	Environmental Monitoring and Technologies, Inc	SDG:	10RB
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Subsurface Soil	Laboratory ID:	18K0933-03
		File ID:	U18L04014
Sampled:	11/28/18 11:18	Prepared:	11/30/18 15:37
		Analyzed:	12/04/18 20:29
Solids:	83.16	Preparation:	3546_P
		Dilution:	1
Batch:	B8K0979	Sequence:	S8L0045
		Calibration:	EL80034
		Instrument:	U

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
72-54-8	4,4'-DDD		0.595	2.25	4.49	U
72-55-9	4,4'-DDE		0.449	1.12	4.49	U
50-29-3	4,4'-DDT		0.438	1.12	4.49	U
309-00-2	Aldrin		0.382	1.12	4.49	U
319-84-6	alpha-BHC		0.427	1.12	4.49	U
5103-71-9	alpha-Chlordane		0.652	2.25	4.49	U
319-85-7	beta-BHC		1.11	2.25	8.99	U
319-86-8	delta-BHC		1.71	2.25	8.99	U
60-57-1	Dieldrin		0.438	1.12	4.49	U
959-98-8	Endosulfan I		0.404	1.12	4.49	U
33213-65-9	Endosulfan II		0.843	2.25	4.49	U
1031-07-8	Endosulfan sulfate		1.57	4.49	8.99	U
72-20-8	Endrin		0.438	2.25	4.49	U
7421-93-4	Endrin aldehyde		1.83	4.49	8.99	U
53494-70-5	Endrin ketone		1.34	4.49	8.99	U
58-89-9	gamma-BHC		0.494	2.25	4.49	U
5566-34-7	gamma-Chlordane		0.528	2.25	4.49	U
76-44-8	Heptachlor		0.483	2.25	4.49	U
1024-57-3	Heptachlor epoxide		0.483	2.25	4.49	U
72-43-5	Methoxychlor		0.595	2.25	4.49	U
8001-35-2	Toxaphene		98.3	225	562	U

Italicized = secondary result

*mw* 1-28-19

# 1 - FORM I

## ANALYSIS DATA SHEET

18111113

Laboratory:	Environmental Monitoring and Technologies, Inc	SDG:	10RB
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Subsurface Soil	Laboratory ID:	18K0933-04
		File ID:	U18L04015
Sampled:	11/28/18 13:50	Prepared:	11/30/18 15:37
		Analyzed:	12/04/18 20:45
Solids:	80.84	Preparation:	3546_P
		Dilution:	1
Batch:	B8K0979	Sequence:	S8L0045
		Calibration:	EL80034
		Instrument:	U

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
72-54-8	4,4'-DDD		0.626	2.36	4.73	U
72-55-9	4,4'-DDE		0.473	1.18	4.73	U
50-29-3	4,4'-DDT		0.461	1.18	4.73	U
309-00-2	Aldrin		0.402	1.18	4.73	U
319-84-6	alpha-BHC		0.449	1.18	4.73	U
5103-71-9	alpha-Chlordane		0.685	2.36	4.73	U
319-85-7	beta-BHC		1.17	2.36	9.45	U
319-86-8	delta-BHC		1.80	2.36	9.45	U
60-57-1	Dieldrin		0.461	1.18	4.73	U
959-98-8	Endosulfan I		0.425	1.18	4.73	U
33213-65-9	Endosulfan II		0.886	2.36	4.73	U
1031-07-8	Endosulfan sulfate		1.65	4.73	9.45	U
72-20-8	Endrin		0.461	2.36	4.73	U
7421-93-4	Endrin aldehyde		1.93	4.73	9.45	U
53494-70-5	Endrin ketone		1.41	4.73	9.45	U
58-89-9	gamma-BHC		0.520	2.36	4.73	U
5566-34-7	gamma-Chlordane		0.555	2.36	4.73	U
76-44-8	Heptachlor		0.508	2.36	4.73	U
1024-57-3	Heptachlor epoxide		0.508	2.36	4.73	U
72-43-5	Methoxychlor		0.626	2.36	4.73	U
8001-35-2	Toxaphene		103	236	591	U

Italicized = secondary result

*11/28/19*



**1 - FORM I**  
**ANALYSIS DATA SHEET**

18111101

Laboratory:	Environmental Monitoring and Technologies, Inc			SDG:	10RB
Client:	Ecology and Environment, Inc.			Project:	1004530.0470.001.01
Matrix:	Soil	Laboratory ID:	18K0755-01	File ID:	A18K28010
Sampled:	11/19/18 00:00	Prepared:	11/26/18 16:50	Analyzed:	11/28/18 19:02
Solids:	78.64	Preparation:	3546_PCB	Dilution:	1
Batch:	B8K0795	Sequence:	S8K0447	Calibration:	EJ80066
Column:	1			Instrument:	A

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
12674-11-2	Aroclor 1016		0.0583	0.187	0.250	U
11104-28-2	Aroclor 1221		0.165	0.375	0.625	U
11141-16-5	Aroclor 1232		0.0502	0.125	0.250	U
53469-21-9	Aroclor 1242		0.0472	0.125	0.250	U
12672-29-6	Aroclor 1248		0.0518	0.125	0.250	U
11097-69-1	Aroclor 1254		0.0525	0.125	0.250	U
11096-82-5	Aroclor 1260		0.0645	0.187	0.250	U
1336-36-3	Total PCB		0.165	0.375	0.625	U

*MW 12-31-18*

**1 - FORM I**  
**ANALYSIS DATA SHEET**

18111103

Laboratory:	Environmental Monitoring and Technologies, Inc			SDG:	10RB
Client:	Ecology and Environment, Inc.			Project:	1004530.0470.001.01
Matrix:	Soil	Laboratory ID:	18K0755-02	File ID:	A18K28011
Sampled:	11/19/18 00:00	Prepared:	11/26/18 16:50	Analyzed:	11/28/18 19:29
Solids:	72.73	Preparation:	3546_PCB	Dilution:	1
Batch:	B8K0795	Sequence:	S8K0447	Calibration:	EJ80066
Column:	1			Instrument:	A

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
12674-11-2	Aroclor 1016		0.0625	0.201	0.268	U
11104-28-2	Aroclor 1221		0.177	0.402	0.669	U
11141-16-5	Aroclor 1232		0.0538	0.134	0.268	U
53469-21-9	Aroclor 1242		0.0506	0.134	0.268	U
12672-29-6	Aroclor 1248		0.0556	0.134	0.268	U
11097-69-1	Aroclor 1254		0.0562	0.134	0.268	U
11096-82-5	Aroclor 1260		0.0691	0.201	0.268	U
1336-36-3	Total PCB		0.177	0.402	0.669	U

*Handwritten signature*

**1 - FORM I**  
**ANALYSIS DATA SHEET**

18111105

Laboratory:	Environmental Monitoring and Technologies, Inc			SDG:	10RB
Client:	Ecology and Environment, Inc.			Project:	1004530.0470.001.01
Matrix:	Soil	Laboratory ID:	18K0902-01	File ID:	A18L03005
Sampled:	11/27/18 00:00	Prepared:	11/30/18 15:33	Analyzed:	12/03/18 11:23
Solids:	82.99	Preparation:	3546_PCB	Dilution:	1
Batch:	B8K0978	Sequence:	S8L0023	Calibration:	EJ80066
Column:	1			Instrument:	A

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
12674-11-2	Aroclor 1016		0.0514	0.165	0.220	U
11104-28-2	Aroclor 1221		0.145	0.330	0.550	U
11141-16-5	Aroclor 1232		0.0442	0.110	0.220	U
53469-21-9	Aroclor 1242		0.0416	0.110	0.220	U
12672-29-6	Aroclor 1248		0.0457	0.110	0.220	U
11097-69-1	Aroclor 1254		0.0462	0.110	0.220	U
11096-82-5	Aroclor 1260		0.0568	0.165	0.220	U
1336-36-3	Total PCB		0.145	0.330	0.550	U

MMW 12-31-18

**1 - FORM I**  
**ANALYSIS DATA SHEET**

18111106

Laboratory:	Environmental Monitoring and Technologies, Inc			SDG:	10RB
Client:	Ecology and Environment, Inc.			Project:	1004530.0470.001.01
Matrix:	Soil	Laboratory ID:	18K0902-02	File ID:	A18L03006
Sampled:	11/27/18 00:00	Prepared:	11/30/18 15:33	Analyzed:	12/03/18 11:49
Solids:	79.21	Preparation:	3546_PCB	Dilution:	1
Batch:	B8K0978	Sequence:	S8L0023	Calibration:	EJ80066
Column:	1			Instrument:	A

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
12674-11-2	Aroclor 1016		0.0547	0.176	0.234	U
11104-28-2	Aroclor 1221		0.155	0.352	0.586	U
11141-16-5	Aroclor 1232		0.0471	0.117	0.234	U
53469-21-9	Aroclor 1242		0.0443	0.117	0.234	U
12672-29-6	Aroclor 1248		0.0486	0.117	0.234	U
11097-69-1	Aroclor 1254		0.0492	0.117	0.234	U
11096-82-5	Aroclor 1260		0.0605	0.176	0.234	U
1336-36-3	Total PCB		0.155	0.352	0.586	U

*MW R-31-18*

**1 - FORM I**  
**ANALYSIS DATA SHEET**

18111107

Laboratory:	Environmental Monitoring and Technologies, Inc	SDG:	10RB
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Soil	Laboratory ID:	18K0902-03
		File ID:	A18L03007
Sampled:	11/27/18 00:00	Prepared:	11/30/18 15:33
		Analyzed:	12/03/18 12:16
Solids:	78.48	Preparation:	3546_PCB
		Dilution:	1
Batch:	B8K0978	Sequence:	S8L0023
		Calibration:	EJ80066
		Instrument:	A
Column:	1		

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
12674-11-2	Aroclor 1016		0.0568	0.182	0.243	U
11104-28-2	Aroclor 1221		0.161	0.365	0.608	U
11141-16-5	Aroclor 1232		0.0489	0.122	0.243	U
53469-21-9	Aroclor 1242		0.0459	0.122	0.243	U
12672-29-6	Aroclor 1248		0.0504	0.122	0.243	U
11097-69-1	Aroclor 1254		0.0511	0.122	0.243	U
11096-82-5	Aroclor 1260		0.0627	0.182	0.243	U
1336-36-3	Total PCB		0.161	0.365	0.608	U

JAW/2-31-18



# 1 - FORM I

## ANALYSIS DATA SHEET

18111108

Laboratory:	Environmental Monitoring and Technologies, Inc	SDG:	10RB
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Soil	Laboratory ID:	18K0902-04
		File ID:	A18L03008
Sampled:	11/27/18 00:00	Prepared:	11/30/18 15:33
		Analyzed:	12/03/18 12:43
Solids:	77.87	Preparation:	3546_PCB
		Dilution:	1
Batch:	B8K0978	Sequence:	S8L0023
		Calibration:	EJ80066
		Instrument:	A
Column:	1		

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
12674-11-2	Aroclor 1016		0.0569	0.183	0.244	U
11104-28-2	Aroclor 1221		0.161	0.365	0.609	U
11141-16-5	Aroclor 1232		0.0490	0.122	0.244	U
53469-21-9	Aroclor 1242		0.0460	0.122	0.244	U
12672-29-6	Aroclor 1248		0.0506	0.122	0.244	U
11097-69-1	Aroclor 1254		0.0512	0.122	0.244	U
11096-82-5	Aroclor 1260		0.0629	0.183	0.244	U
1336-36-3	Total PCB		0.161	0.365	0.609	U

*MW* 12-31-18

**1 - FORM I**  
**ANALYSIS DATA SHEET**

18111110

Laboratory:	Environmental Monitoring and Technologies, Inc	SDG:	10RB
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Subsurface Soil	Laboratory ID:	18K0933-01
		File ID:	A18L03003R
Sampled:	11/28/18 08:20	Prepared:	11/30/18 15:33
		Analyzed:	12/03/18 10:29
Solids:	85.56	Preparation:	3546_PCB
		Dilution:	1
Batch:	B8K0978	Sequence:	S8L0023
		Calibration:	EJ80066
		Instrument:	A
Column:	2		

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
12674-11-2	Aroclor 1016 [2C]		0.0524	0.168	0.225	U
11104-28-2	Aroclor 1221 [2C]		0.148	0.337	0.562	U
11141-16-5	Aroclor 1232 [2C]		0.0451	0.112	0.225	U
53469-21-9	Aroclor 1242 [2C]		0.0425	0.112	0.225	U
12672-29-6	Aroclor 1248 [2C]		0.0466	0.112	0.225	U
11097-69-1	Aroclor 1254 [2C]		0.0472	0.112	0.225	U
11096-82-5	Aroclor 1260 [2C]		0.0580	0.168	0.225	U
1336-36-3	Total PCB [2C]		0.148	0.337	0.562	U

mw 12-31-18

**1 - FORM I**  
**ANALYSIS DATA SHEET**

18111111

Laboratory:	Environmental Monitoring and Technologies, Inc			SDG:	10RB
Client:	Ecology and Environment, Inc.			Project:	1004530.0470.001.01
Matrix:	Subsurface Soil	Laboratory ID:	18K0933-02	File ID:	A18L03004R
Sampled:	11/28/18 09:20	Prepared:	11/30/18 15:33	Analyzed:	12/03/18 10:56
Solids:	84.86	Preparation:	3546_PCB	Dilution:	1
Batch:	B8K0978	Sequence:	S8L0023	Calibration:	EJ80066
Column:	2			Instrument:	A

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
12674-11-2	Aroclor 1016 [2C]		0.0513	0.165	0.220	U
11104-28-2	Aroclor 1221 [2C]		0.145	0.330	0.550	U
11141-16-5	Aroclor 1232 [2C]		0.0442	0.110	0.220	U
53469-21-9	Aroclor 1242 [2C]		0.0416	0.110	0.220	U
12672-29-6	Aroclor 1248 [2C]		0.0456	0.110	0.220	U
11097-69-1	Aroclor 1254 [2C]		0.0462	0.110	0.220	U
11096-82-5	Aroclor 1260 [2C]		0.0567	0.165	0.220	U
1336-36-3	Total PCB [2C]		0.145	0.330	0.550	U

*W* 12-31-18

**1 - FORM I**  
**ANALYSIS DATA SHEET**

18111112

Laboratory:	Environmental Monitoring and Technologies, Inc			SDG:	10RB
Client:	Ecology and Environment, Inc.			Project:	1004530.0470.001.01
Matrix:	Subsurface Soil	Laboratory ID:	18K0933-03	File ID:	A18L03005R
Sampled:	11/28/18 11:18	Prepared:	11/30/18 15:33	Analyzed:	12/03/18 11:23
Solids:	83.16	Preparation:	3546_PCB	Dilution:	1
Batch:	B8K0978	Sequence:	S8L0023	Calibration:	EJ80066
Column:	2			Instrument:	A

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
12674-11-2	Aroclor 1016 [2C]		0.0525	0.169	0.225	U
11104-28-2	Aroclor 1221 [2C]		0.148	0.337	0.562	U
11141-16-5	Aroclor 1232 [2C]		0.0452	0.112	0.225	U
53469-21-9	Aroclor 1242 [2C]		0.0425	0.112	0.225	U
12672-29-6	Aroclor 1248 [2C]		0.0466	0.112	0.225	U
11097-69-1	Aroclor 1254 [2C]		0.0472	0.112	0.225	U
11096-82-5	Aroclor 1260 [2C]		0.0580	0.169	0.225	U
1336-36-3	Total PCB [2C]		0.148	0.337	0.562	U

*MW 12-31-18*

**1 - FORM I**  
**ANALYSIS DATA SHEET**

18111113

Laboratory:	Environmental Monitoring and Technologies, Inc			SDG:	10RB
Client:	Ecology and Environment, Inc.			Project:	1004530.0470.001.01
Matrix:	Subsurface Soil	Laboratory ID:	18K0933-04	File ID:	A18L03006R
Sampled:	11/28/18 13:50	Prepared:	11/30/18 15:33	Analyzed:	12/03/18 11:49
Solids:	80.84	Preparation:	3546_PCB	Dilution:	1
Batch:	B8K0978	Sequence:	S8L0023	Calibration:	EJ80066
Column:	2			Instrument:	A

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
12674-11-2	Aroclor 1016 [2C]		0.0552	0.177	0.236	U
11104-28-2	Aroclor 1221 [2C]		0.156	0.355	0.591	U
11141-16-5	Aroclor 1232 [2C]		0.0475	0.118	0.236	U
53469-21-9	Aroclor 1242 [2C]		0.0447	0.118	0.236	U
12672-29-6	Aroclor 1248 [2C]		0.0490	0.118	0.236	U
11097-69-1	Aroclor 1254 [2C]		0.0496	0.118	0.236	U
11096-82-5	Aroclor 1260 [2C]		0.0610	0.177	0.236	U
1336-36-3	Total PCB [2C]		0.156	0.355	0.591	U

MW/2-31-18





## ecology and environment, inc.

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### MEMORANDUM

DATE: January 29, 2019

TO: Steve Hall, START-IV Project Manager, E & E, Seattle, Washington

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington 

SUBJ: **Organic Data Quality Assurance Review, May Creek Removal Action Site, Renton, Washington**

REF: TO: TO-68HE0718F0470 PAN: 1004530.0470.001.01

The data quality assurance review of 10 soil samples collected from the May Creek Removal Action site in Renton, Washington, has been completed. Semivolatile Organic Compound (SVOC) analysis (EPA Method 8270) was performed by Environmental Monitoring and Technologies, Inc., Morton Grove, Illinois. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Manual Process (S2B/4VM).

The samples were numbered:

18111101	18111103	18111105	18111106	18111107
18111108	18111110	18111111	18111112	18111113

#### Data Qualifications:

##### 1. Sample Holding Times: Acceptable.

The samples were maintained and received within the QC limits of 0°C to 6°C. The samples were collected between November 19 and 28, 2018, were extracted on November 21 and December 4, 2018, and were analyzed by December 6, 2018, therefore meeting holding time criteria of less than 14 days between collection and extraction and less than 40 days between extraction and analysis.

##### 2. Tuning: Acceptable.

Tuning was performed at the beginning of each 12-hour analysis sequence. All results were within QC limits.

##### 3. Initial Calibration: Acceptable.

All average Relative Response Factors (RRFs) were within the QC limits. All Relative Standard Deviations (RSDs) were within the QC limits.

##### 4. Continuing Calibration: Acceptable.

All RRFs were within the QC limits. All % differences were within the QC limits.

##### 5. Blanks: Satisfactory.

A method blank was analyzed for each 20 sample batch per matrix. There were no detections in any method blank except di-n-butylphthalate (8.2 ug/kg). Associated positive sample results less than the reporting limit were qualified as not detected (U).

**6. System Monitoring Compounds (SMCs): Acceptable.**

All SMC recoveries were within QC limits.

**7. Matrix Spike (MS)/MS Duplicate (MSD) Analysis: Satisfactory.**

MS and MSD analyses were performed per SDG or per matrix per concentration level, whichever was more frequent. All recoveries were within QC limits except 3,3'-dichlorobenzidine, 4-nitrophenol, benzo(g,h,i)perylene, and indeno(1,2,3-cd)pyrene with low recoveries, benzidine, benzoic acid, and 2,4-dinitrophenol with 0% recoveries, di-n-octylphthalate with high recoveries (all associated with batch 0735) and benzidine with low recoveries associated with batch 0091; no qualifiers were applied based on these outliers alone.

**8. Blank Spike (BS)/BS Duplicate (BSD) Analysis: Acceptable.**

BS and BSD analyses were performed per SDG or per matrix per concentration level, whichever was more frequent. All recoveries were within QC limits.

**9. Duplicate Analysis: Satisfactory.**

Spike duplicate analyses were performed per SDG or per matrix per concentration level, whichever was more frequent. All spike duplicate results were within QC limits except several outliers in the MS and MSD associated with batch 0735. No qualifiers were applied based on the duplicate outliers alone.

**10. Internal Standards: Acceptable.**

All internal standards (IS) were within  $\pm 30$  seconds of the continuing calibration IS retention times. All area counts were within 50 % to 200 % of the continuing calibration area counts.

**11. Performance Evaluation Sample Analysis: Not Provided.**

Performance evaluation samples were not provided to the laboratory.

**12. Overall Assessment of Data for Use**

A total of 690 results were validated in this data memorandum. No sample results were qualified as estimated quantities (J) based on duplicate precision outliers, spike accuracy outliers, holding time outliers, incorrect sample containers, or sample temperature outliers. The following analyte was detected in the method blank: di-n-butylphthalate. No sample results were rejected (R).

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the analytical method(s), the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, and/or the Office of Emergency and Remedial Response Publication "National Functional Guidelines for Superfund Organic Methods Data Review, January 2017". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

### Data Qualifiers and Definitions

- H - The sample result is biased high.
- J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
- K - The bias of the sample is not known.
- L - The sample result is biased low.
- N - The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification".
- NJ - The analyte has been "tentatively identified" or "presumptively" as present and the associated numerical value is the estimated concentration in the sample.
- Q - Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.
- R - The data is rejected and unusable. The analyte may or may not be present in the sample.
- U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.

# 1 - FORM I

## ANALYSIS DATA SHEET

18111101

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Soil	Laboratory ID:	18K0755-01
		File ID:	S18K22006.D
Sampled:	11/19/18 00:00	Prepared:	11/21/18 12:53
		Analyzed:	11/22/18 16:46
Solids:	78.64	Preparation:	3550_B
		Dilution:	1
Initial/Final:	40.6096 g / 1 ml		
Batch:	B8K0735	Sequence:	S8K0417
		Calibration:	EK80040
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
120-82-1	1,2,4-Trichlorobenzene		7.31	25.1	50.1	U
95-50-1	1,2-Dichlorobenzene		8.40	25.1	50.1	U
541-73-1	1,3-Dichlorobenzene		7.34	25.1	50.1	U
106-46-7	1,4-Dichlorobenzene		9.57	25.1	50.1	U
95-95-4	2,4,5-Trichlorophenol		4.45	12.5	25.1	U
88-06-2	2,4,6-Trichlorophenol		3.21	12.5	25.1	U
120-83-2	2,4-Dichlorophenol		4.01	12.5	25.1	U
105-67-9	2,4-Dimethylphenol		5.17	12.5	25.1	U
51-28-5	2,4-Dinitrophenol		123	376	752	U
121-14-2	2,4-Dinitrotoluene		8.26	100	150	U
606-20-2	2,6-Dinitrotoluene		4.46	50.1	100	U
91-58-7	2-Chloronaphthalene		5.32	12.5	25.1	U
95-57-8	2-Chlorophenol		5.59	12.5	25.1	U
91-57-6	2-Methylnaphthalene		4.85	12.5	25.1	U
95-48-7	2-Methylphenol		2.88	6.26	12.5	U
88-74-4	2-Nitroaniline		3.37	12.5	25.1	U
88-75-5	2-Nitrophenol		3.92	50.1	100	U
91-94-1	3,3'-Dichlorobenzidine		23.9	50.1	100	U
84989-04-8	3 & 4-Methylphenol	26.9	9.77	25.1	50.1	J Q
99-09-2	3-Nitroaniline		6.06	18.8	37.6	U
534-52-1	4,6-Dinitro-2-methylphenol		59.9	188	376	U
101-55-3	4-Bromophenyl-phenylether		6.64	18.8	37.6	U
59-50-7	4-Chloro-3-methylphenol		3.44	12.5	25.1	U
106-47-8	4-Chloroaniline		6.02	18.8	37.6	U
7005-72-3	4-Chlorophenyl-phenylether		6.35	18.8	37.6	U
100-01-6	4-Nitroaniline		4.97	25.1	50.1	U
100-02-7	4-Nitrophenol		81.0	251	501	U
83-32-9	Acenaphthene		5.03	12.5	25.1	U
208-96-8	Acenaphthylene		3.32			U

*MW 1-29-18*

# 1 - FORM I

## ANALYSIS DATA SHEET

18111101

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Soil	Laboratory ID:	18K0755-01
		File ID:	S18K22006.D
Sampled:	11/19/18 00:00	Prepared:	11/21/18 12:53
		Analyzed:	11/22/18 16:46
Solids:	78.64	Preparation:	3550_B
		Dilution:	1
Initial/Final:	40.6096 g / 1 ml		
Batch:	B8K0735	Sequence:	S8K0417
		Calibration:	EK80040
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
120-12-7	Anthracene	4.38	2.61	6.26	12.5	J Q
103-33-3	Azobenzene as 1,2-Diphenylhydrazine		3.58	12.5	25.1	U
92-87-5	Benzidine		51.9	1250	2920	U
56-55-3	Benzo(a)anthracene	23.5	1.72	6.26	12.5	
50-32-8	Benzo(a)pyrene	27.9	7.68	50.1	100	J Q
205-99-2	Benzo(b)fluoranthene	42.6	3.91	50.1	100	J Q
191-24-2	Benzo(g,h,i)perylene		5.57	25.1	50.1	U
207-08-9	Benzo(k)fluoranthene	16.6	6.12	25.1	50.1	J Q
65-85-0	Benzoic acid		125	752	1250	U
100-51-6	Benzyl alcohol	5.64	4.83	12.5	25.1	J Q
111-91-1	Bis(2-chloroethoxy)methane		5.48	12.5	25.1	U
111-44-4	Bis(2-chloroethyl)ether		66.4	188	376	U
108-60-1	Bis(2-chloroisopropyl)ether		84.6	251	501	U
117-81-7	Bis(2-ethylhexyl)phthalate	52.9	10.5	37.6	75.2	J Q
85-68-7	Butyl benzyl phthalate	54.8	10.4	37.6	75.2	J Q
86-74-8	Carbazole	4.70	4.22	12.5	25.1	J Q
218-01-9	Chrysene	26.0	3.99	12.5	25.1	
53-70-3	Dibenzo(a,h)anthracene		3.73	50.1	100	U
132-64-9	Dibenzofuran		5.61	12.5	25.1	U
84-66-2	Diethyl phthalate		3.66	12.5	25.1	U
131-11-3	Dimethyl phthalate	3.13	2.30	6.26	12.5	J Q
84-74-2	Di-n-butyl phthalate	13.8	4.65	12.5	25.1	J Q
117-84-0	Di-n-octyl phthalate		18.9	50.1	100	U
206-44-0	Fluoranthene	45.4	3.44	12.5	25.1	
86-73-7	Fluorene		4.93	12.5	25.1	U
118-74-1	Hexachlorobenzene		4.82	12.5	25.1	U
87-68-3	Hexachlorobutadiene		7.71	25.1	50.1	U
77-47-4	Hexachlorocyclopentadiene		94.2	251	501	U
67-72-1	Hexachloroethane		6.87	25.1	50.1	U

MWF-2948



# 1 - FORM I

## ANALYSIS DATA SHEET

18111101

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Soil	Laboratory ID:	18K0755-01
		File ID:	S18K22006.D
Sampled:	11/19/18 00:00	Prepared:	11/21/18 12:53
		Analyzed:	11/22/18 16:46
Solids:	78.64	Preparation:	3550_B
		Dilution:	1
Initial/Final:	40.6096 g / 1 ml		
Batch:	B8K0735	Sequence:	S8K0417
		Calibration:	EK80040
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
193-39-5	Indeno(1,2,3-cd)pyrene		3.97	50.1	100	U
78-59-1	Isophorone		29.8	75.2	150	U
91-20-3	Naphthalene		6.89	25.1	50.1	U
98-95-3	Nitrobenzene		6.50	25.1	50.1	U
62-75-9	N-Nitrosodimethylamine		9.48	25.1	50.1	U
621-64-7	N-Nitrosodi-n-propylamine		11.8	37.6	75.2	U
86-30-6	N-Nitrosodiphenylamine		3.56	12.5	25.1	U
87-86-5	Pentachlorophenol		67.4	188	376	U
85-01-8	Phenanthrene	19.7	5.51	12.5	25.1	J Q
108-95-2	Phenol		6.92	25.1	50.1	U
129-00-0	Pyrene	42.9	1.77	6.26	12.5	

*Mw 1-2948*

# 1 - FORM I

## ANALYSIS DATA SHEET

18111103

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Soil	Laboratory ID:	18K0755-02
		File ID:	S18K22009.D
Sampled:	11/19/18 00:00	Prepared:	11/21/18 12:53
		Analyzed:	11/22/18 18:27
Solids:	72.73	Preparation:	3550_B
		Dilution:	1
Initial/Final:	40.8379 g / 1 ml		
Batch:	B8K0735	Sequence:	S8K0417
		Calibration:	EK80040
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
120-82-1	1,2,4-Trichlorobenzene		7.86	26.9	53.9	U
95-50-1	1,2-Dichlorobenzene		9.03	26.9	53.9	U
541-73-1	1,3-Dichlorobenzene		7.89	26.9	53.9	U
106-46-7	1,4-Dichlorobenzene		10.3	26.9	53.9	U
95-95-4	2,4,5-Trichlorophenol		4.78	13.5	26.9	U
88-06-2	2,4,6-Trichlorophenol		3.45	13.5	26.9	U
120-83-2	2,4-Dichlorophenol		4.31	13.5	26.9	U
51-28-5	2,4-Dinitrophenol		133	404	808	U
121-14-2	2,4-Dinitrotoluene		8.88	108	162	U
606-20-2	2,6-Dinitrotoluene		4.79	53.9	108	U
91-58-7	2-Chloronaphthalene		5.72	13.5	26.9	U
95-57-8	2-Chlorophenol		6.01	13.5	26.9	U
91-57-6	2-Methylnaphthalene		5.21	13.5	26.9	U
88-74-4	2-Nitroaniline		3.63	13.5	26.9	U
88-75-5	2-Nitrophenol		4.21	53.9	108	U
91-94-1	3,3'-Dichlorobenzidine		25.7	53.9	108	U
84989-04-8	3 & 4-Methylphenol		10.5	26.9	53.9	U
99-09-2	3-Nitroaniline		6.52	20.2	40.4	U
534-52-1	4,6-Dinitro-2-methylphenol		64.4	202	404	U
101-55-3	4-Bromophenyl-phenylether		7.13	20.2	40.4	U
59-50-7	4-Chloro-3-methylphenol		3.70	13.5	26.9	U
106-47-8	4-Chloroaniline		6.47	20.2	40.4	U
7005-72-3	4-Chlorophenyl-phenylether		6.83	20.2	40.4	U
100-01-6	4-Nitroaniline		5.34	26.9	53.9	U
100-02-7	4-Nitrophenol		87.1	269	539	U
83-32-9	Acenaphthene	69.4	5.41	13.5	26.9	
208-96-8	Acenaphthylene	6.06	3.57	13.5	26.9	JQ
120-12-7	Anthracene	352	2.81	6.73	13.5	
103-33-3	Azobenzene as 1,2-Diphenylhydrazine		3.85	Page 1723 of 2813		U

MW-2949

# 1 - FORM I

## ANALYSIS DATA SHEET

18111103

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Soil	Laboratory ID:	18K0755-02
		File ID:	S18K22009.D
Sampled:	11/19/18 00:00	Prepared:	11/21/18 12:53
		Analyzed:	11/22/18 18:27
Solids:	72.73	Preparation:	3550_B
		Dilution:	1
Initial/Final:	40.8379 g / 1 ml		
Batch:	B8K0735	Sequence:	S8K0417
		Calibration:	EK80040
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
92-87-5	Benzidine		55.9	1350	3140	U
65-85-0	Benzoic acid		134	808	1350	U
100-51-6	Benzyl alcohol		5.19	13.5	26.9	U
111-91-1	Bis(2-chloroethoxy)methane		5.90	13.5	26.9	U
111-44-4	Bis(2-chloroethyl)ether		71.4	202	404	U
108-60-1	Bis(2-chloroisopropyl)ether		90.9	269	539	U
86-74-8	Carbazole	408	4.54	13.5	26.9	
132-64-9	Dibenzofuran	33.3	6.03	13.5	26.9	
84-66-2	Diethyl phthalate		3.94	13.5	26.9	U
131-11-3	Dimethyl phthalate		2.47	6.73	13.5	U
84-74-2	Di-n-butyl phthalate		5.00	13.5	26.9	U
117-84-0	Di-n-octyl phthalate		20.3	53.9	108	U
206-44-0	Fluoranthene	2800	3.70	13.5	26.9	
86-73-7	Fluorene	68.3	5.30	13.5	26.9	
118-74-1	Hexachlorobenzene		5.19	13.5	26.9	U
87-68-3	Hexachlorobutadiene		8.29	26.9	53.9	U
77-47-4	Hexachlorocyclopentadiene		101	269	539	U
67-72-1	Hexachloroethane		7.39	26.9	53.9	U
78-59-1	Isophorone		32.0	80.8	162	U
98-95-3	Nitrobenzene		6.99	26.9	53.9	U
62-75-9	N-Nitrosodimethylamine		10.2	26.9	53.9	U
621-64-7	N-Nitrosodi-n-propylamine		12.6	40.4	80.8	U
86-30-6	N-Nitrosodiphenylamine		3.82	13.5	26.9	U
87-86-5	Pentachlorophenol		72.5	202	404	U
85-01-8	Phenanthrene	1150	5.92	13.5	26.9	
108-95-2	Phenol		7.44	26.9	53.9	U

*MM-29-19*

# 1 - FORM I

## ANALYSIS DATA SHEET

18111103

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Soil	Laboratory ID:	18K0755-02RE1
		File ID:	S18K28005.D
Sampled:	11/19/18 00:00	Prepared:	11/21/18 12:53
		Analyzed:	11/28/18 16:14
Solids:	72.73	Preparation:	3550_B
		Dilution:	2
Initial/Final:	40.8379 g / 1 ml		
Batch:	B8K0735	Sequence:	S8K0443
		Calibration:	EK80040
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
105-67-9	2,4-Dimethylphenol		11.1	26.9	53.9	U
95-48-7	2-Methylphenol		6.19	13.5	26.9	U
56-55-3	Benzo(a)anthracene	1180	3.71	13.5	26.9	D
50-32-8	Benzo(a)pyrene	1540	16.5	108	215	D
205-99-2	Benzo(b)fluoranthene	2430	8.40	108	215	D
191-24-2	Benzo(g,h,i)perylene	426	12.0	53.9	108	D
207-08-9	Benzo(k)fluoranthene	973	13.2	53.9	108	D
117-81-7	Bis(2-ethylhexyl)phthalate	237	22.6	80.8	162	D
85-68-7	Butyl benzyl phthalate	163	22.3	80.8	162	D
218-01-9	Chrysene	1340	8.58	26.9	53.9	D
53-70-3	Dibenzo(a,h)anthracene	137	8.03	108	215	D JQ
193-39-5	Indeno(1,2,3-cd)pyrene	597	8.55	108	215	D
91-20-3	Naphthalene		14.8	53.9	108	U
129-00-0	Pyrene	2870	3.82	13.5	26.9	D

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# 1 - FORM I

## ANALYSIS DATA SHEET

18111105

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Subsurface Soil	Laboratory ID:	18K0902-01
Sampled:	11/27/18 00:00	Prepared:	12/04/18 12:41
Solids:	82.99	Preparation:	3550_B
Initial/Final:	40.194 g / 1 ml	Analyzed:	12/06/18 18:29
Batch:	B8L0091	Sequence:	S8L0079
		Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
120-82-1	1,2,4-Trichlorobenzene		7.00	24.0	48.0	U
95-50-1	1,2-Dichlorobenzene		8.04	24.0	48.0	U
541-73-1	1,3-Dichlorobenzene		7.03	24.0	48.0	U
106-46-7	1,4-Dichlorobenzene		9.17	24.0	48.0	U
95-95-4	2,4,5-Trichlorophenol		4.26	12.0	24.0	U
88-06-2	2,4,6-Trichlorophenol		3.07	12.0	24.0	U
120-83-2	2,4-Dichlorophenol		3.84	12.0	24.0	U
105-67-9	2,4-Dimethylphenol		4.95	12.0	24.0	U
51-28-5	2,4-Dinitrophenol		118	360	719	U
121-14-2	2,4-Dinitrotoluene		7.91	95.9	144	U
606-20-2	2,6-Dinitrotoluene		4.27	48.0	95.9	U
91-58-7	2-Chloronaphthalene		5.09	12.0	24.0	U
95-57-8	2-Chlorophenol		5.35	12.0	24.0	U
91-57-6	2-Methylnaphthalene		4.64	12.0	24.0	U
95-48-7	2-Methylphenol		2.75	6.00	12.0	U
88-74-4	2-Nitroaniline		3.23	12.0	24.0	U
88-75-5	2-Nitrophenol		3.75	48.0	95.9	U
91-94-1	3,3'-Dichlorobenzidine		22.9	48.0	95.9	U
84989-04-8	3 & 4-Methylphenol		9.36	24.0	48.0	U
99-09-2	3-Nitroaniline		5.80	18.0	36.0	U
534-52-1	4,6-Dinitro-2-methylphenol		57.3	180	360	U
101-55-3	4-Bromophenyl-phenylether		6.35	18.0	36.0	U
59-50-7	4-Chloro-3-methylphenol		3.29	12.0	24.0	U
106-47-8	4-Chloroaniline		5.76	18.0	36.0	U
7005-72-3	4-Chlorophenyl-phenylether		6.08	18.0	36.0	U
100-01-6	4-Nitroaniline		4.76	24.0	48.0	U
100-02-7	4-Nitrophenol		77.6	240	480	U
83-32-9	Acenaphthene		4.81	12.0	24.0	U
208-96-8	Acenaphthylene		3.18	12.0	24.0	U

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# 1 - FORM I

## ANALYSIS DATA SHEET

18111105

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Subsurface Soil	Laboratory ID:	18K0902-01
		File ID:	S18L06010.D
Sampled:	11/27/18 00:00	Prepared:	12/04/18 12:41
		Analyzed:	12/06/18 18:29
Solids:	82.99	Preparation:	3550_B
		Dilution:	1
Initial/Final:	40.194 g / 1 ml		
Batch:	B8L0091	Sequence:	S8L0079
		Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
120-12-7	Anthracene		2.50	6.00	12.0	U
103-33-3	Azobenzene as 1,2-Diphenylhydrazine		3.43	12.0	24.0	U
92-87-5	Benidine		49.7	1200	2800	U
56-55-3	Benzo(a)anthracene		1.65	6.00	12.0	U
50-32-8	Benzo(a)pyrene		7.35	48.0	95.9	U
205-99-2	Benzo(b)fluoranthene		3.74	48.0	95.9	U
191-24-2	Benzo(g,h,i)perylene		5.33	24.0	48.0	U
207-08-9	Benzo(k)fluoranthene		5.86	24.0	48.0	U
65-85-0	Benzoic acid		119	719	1200	U
100-51-6	Benzyl alcohol		4.62	12.0	24.0	U
111-91-1	Bis(2-chloroethoxy)methane		5.25	12.0	24.0	U
111-44-4	Bis(2-chloroethyl)ether		63.6	180	360	U
108-60-1	Bis(2-chloroisopropyl)ether		80.9	240	480	U
117-81-7	Bis(2-ethylhexyl)phthalate	16.2	10.1	36.0	71.9	JQ
85-68-7	Butyl benzyl phthalate		9.93	36.0	71.9	U
86-74-8	Carbazole		4.04	12.0	24.0	U
218-01-9	Chrysene		3.82	12.0	24.0	U
53-70-3	Dibenzo(a,h)anthracene		3.57	48.0	95.9	U
132-64-9	Dibenzofuran		5.37	12.0	24.0	U
84-66-2	Diethyl phthalate		3.51	12.0	24.0	U
131-11-3	Dimethyl phthalate		2.20	6.00	12.0	U
84-74-2	Di-n-butyl phthalate		4.45	12.0	24.0	U
117-84-0	Di-n-octyl phthalate		18.1	48.0	95.9	U
206-44-0	Fluoranthene		3.30	12.0	24.0	U
86-73-7	Fluorene		4.72	12.0	24.0	U
118-74-1	Hexachlorobenzene		4.62	12.0	24.0	U
87-68-3	Hexachlorobutadiene		7.38	24.0	48.0	U
77-47-4	Hexachlorocyclopentadiene		90.2	240	480	U
67-72-1	Hexachloroethane		6.58	240	480	U

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# 1 - FORM I

## ANALYSIS DATA SHEET

18111105

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Subsurface Soil	Laboratory ID:	18K0902-01
Sampled:	11/27/18 00:00	Prepared:	12/04/18 12:41
Solids:	82.99	Preparation:	3550_B
Initial/Final:	40.194 g / 1 ml	Analyzed:	12/06/18 18:29
Batch:	B8L0091	Sequence:	S8L0079
		Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
193-39-5	Indeno(1,2,3-cd)pyrene		3.80	48.0	95.9	U
78-59-1	Isophorone		28.5	71.9	144	U
91-20-3	Naphthalene		6.59	24.0	48.0	U
98-95-3	Nitrobenzene		6.22	24.0	48.0	U
62-75-9	N-Nitrosodimethylamine		9.07	24.0	48.0	U
621-64-7	N-Nitrosodi-n-propylamine		11.2	36.0	71.9	U
86-30-6	N-Nitrosodiphenylamine		3.40	12.0	24.0	U
87-86-5	Pentachlorophenol		64.5	180	360	U
85-01-8	Phenanthrene	6.60	5.27	12.0	24.0	JQ
108-95-2	Phenol		6.62	24.0	48.0	U
129-00-0	Pyrene	7.19	1.70	6.00	12.0	JQ

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# 1 - FORM I

## ANALYSIS DATA SHEET

18111106

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Subsurface Soil	Laboratory ID:	18K0902-02
		File ID:	S18L06011.D
Sampled:	11/27/18 00:00	Prepared:	12/04/18 12:41
		Analyzed:	12/06/18 19:03
Solids:	79.21	Preparation:	3550_B
		Dilution:	1
Initial/Final:	40.7126 g / 1 ml		
Batch:	B8L0091	Sequence:	S8L0079
		Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
120-82-1	1,2,4-Trichlorobenzene		7.24	24.8	49.6	U
95-50-1	1,2-Dichlorobenzene		8.32	24.8	49.6	U
541-73-1	1,3-Dichlorobenzene		7.27	24.8	49.6	U
106-46-7	1,4-Dichlorobenzene		9.48	24.8	49.6	U
95-95-4	2,4,5-Trichlorophenol		4.41	12.4	24.8	U
88-06-2	2,4,6-Trichlorophenol		3.18	12.4	24.8	U
120-83-2	2,4-Dichlorophenol		3.97	12.4	24.8	U
105-67-9	2,4-Dimethylphenol		5.12	12.4	24.8	U
51-28-5	2,4-Dinitrophenol		122	372	744	U
121-14-2	2,4-Dinitrotoluene		8.18	99.2	149	U
606-20-2	2,6-Dinitrotoluene		4.42	49.6	99.2	U
91-58-7	2-Chloronaphthalene		5.27	12.4	24.8	U
95-57-8	2-Chlorophenol		5.54	12.4	24.8	U
91-57-6	2-Methylnaphthalene	289	4.80	12.4	24.8	
95-48-7	2-Methylphenol		2.85	6.20	12.4	U
88-74-4	2-Nitroaniline		3.34	12.4	24.8	U
88-75-5	2-Nitrophenol		3.88	49.6	99.2	U
91-94-1	3,3'-Dichlorobenzidine		23.6	49.6	99.2	U
84989-04-8	3 & 4-Methylphenol		9.68	24.8	49.6	U
99-09-2	3-Nitroaniline		6.00	18.6	37.2	U
534-52-1	4,6-Dinitro-2-methylphenol		59.3	186	372	U
101-55-3	4-Bromophenyl-phenylether		6.57	18.6	37.2	U
59-50-7	4-Chloro-3-methylphenol		3.40	12.4	24.8	U
106-47-8	4-Chloroaniline		5.96	18.6	37.2	U
7005-72-3	4-Chlorophenyl-phenylether		6.29	18.6	37.2	U
100-01-6	4-Nitroaniline		4.92	24.8	49.6	U
100-02-7	4-Nitrophenol		80.2	248	496	U
83-32-9	Acenaphthene		4.98	12.4	24.8	U
208-96-8	Acenaphthylene		3.29	12.4	24.8	U

7/11/2019

# 1 - FORM I

## ANALYSIS DATA SHEET

18111106

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Subsurface Soil	Laboratory ID:	18K0902-02
		File ID:	S18L06011.D
Sampled:	11/27/18 00:00	Prepared:	12/04/18 12:41
		Analyzed:	12/06/18 19:03
Solids:	79.21	Preparation:	3550_B
		Dilution:	1
Initial/Final:	40.7126 g / 1 ml		
Batch:	B8L0091	Sequence:	S8L0079
		Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
120-12-7	Anthracene		2.59	6.20	12.4	U
103-33-3	Azobenzene as 1,2-Diphenylhydrazine		3.55	12.4	24.8	U
92-87-5	Benzidine		51.4	1240	2890	U
56-55-3	Benzo(a)anthracene		1.71	6.20	12.4	U
50-32-8	Benzo(a)pyrene		7.60	49.6	99.2	U
205-99-2	Benzo(b)fluoranthene		3.87	49.6	99.2	U
191-24-2	Benzo(g,h,i)perylene		5.51	24.8	49.6	U
207-08-9	Benzo(k)fluoranthene		6.06	24.8	49.6	U
65-85-0	Benzoic acid		123	744	1240	U
100-51-6	Benzyl alcohol		4.78	12.4	24.8	U
111-91-1	Bis(2-chloroethoxy)methane		5.43	12.4	24.8	U
111-44-4	Bis(2-chloroethyl)ether		65.8	186	372	U
108-60-1	Bis(2-chloroisopropyl)ether		83.7	248	496	U
117-81-7	Bis(2-ethylhexyl)phthalate		10.4	37.2	74.4	U
85-68-7	Butyl benzyl phthalate		10.3	37.2	74.4	U
86-74-8	Carbazole		4.18	12.4	24.8	U
218-01-9	Chrysene		3.95	12.4	24.8	U
53-70-3	Dibenzo(a,h)anthracene		3.70	49.6	99.2	U
132-64-9	Dibenzofuran		5.55	12.4	24.8	U
84-66-2	Diethyl phthalate		3.63	12.4	24.8	U
131-11-3	Dimethyl phthalate		2.28	6.20	12.4	U
84-74-2	Di-n-butyl phthalate		4.60	12.4	24.8	U
117-84-0	Di-n-octyl phthalate		18.7	49.6	99.2	U
206-44-0	Fluoranthene		3.41	12.4	24.8	U
86-73-7	Fluorene		4.88	12.4	24.8	U
118-74-1	Hexachlorobenzene		4.78	12.4	24.8	U
87-68-3	Hexachlorobutadiene		7.63	24.8	49.6	U
77-47-4	Hexachlorocyclopentadiene		93.3	248	496	U
67-72-1	Hexachloroethane		6.80	248	496	U

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# 1 - FORM I

## ANALYSIS DATA SHEET

18111106

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Subsurface Soil	Laboratory ID:	18K0902-02
		File ID:	S18L06011.D
Sampled:	11/27/18 00:00	Prepared:	12/04/18 12:41
		Analyzed:	12/06/18 19:03
Solids:	79.21	Preparation:	3550_B
		Dilution:	1
Initial/Final:	40.7126 g / 1 ml		
Batch:	B8L0091	Sequence:	S8L0079
		Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
193-39-5	Indeno(1,2,3-cd)pyrene		3.94	49.6	99.2	U
78-59-1	Isophorone		29.5	74.4	149	U
91-20-3	Naphthalene	133	6.82	24.8	49.6	
98-95-3	Nitrobenzene		6.43	24.8	49.6	U
62-75-9	N-Nitrosodimethylamine		9.39	24.8	49.6	U
621-64-7	N-Nitrosodi-n-propylamine		11.6	37.2	74.4	U
86-30-6	N-Nitrosodiphenylamine		3.52	12.4	24.8	U
87-86-5	Pentachlorophenol		66.8	186	372	U
85-01-8	Phenanthrene	8.37	5.45	12.4	24.8	JQ
108-95-2	Phenol		6.85	24.8	49.6	U
129-00-0	Pyrene	12.7	1.76	6.20	12.4	

*Mw 12/29/19*

# 1 - FORM I

## ANALYSIS DATA SHEET

18111107

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Subsurface Soil	Laboratory ID:	18K0902-03
		File ID:	S18L06007.D
Sampled:	11/27/18 00:00	Prepared:	12/04/18 12:41
		Analyzed:	12/06/18 16:44
Solids:	78.48	Preparation:	3550_B
		Dilution:	1
Initial/Final:	40.4181 g / 1 ml		
Batch:	B8L0091	Sequence:	S8L0079
		Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
120-82-1	1,2,4-Trichlorobenzene		7.36	25.2	50.4	U
95-50-1	1,2-Dichlorobenzene		8.46	25.2	50.4	U
541-73-1	1,3-Dichlorobenzene		7.39	25.2	50.4	U
106-46-7	1,4-Dichlorobenzene		9.64	25.2	50.4	U
95-95-4	2,4,5-Trichlorophenol		4.48	12.6	25.2	U
88-06-2	2,4,6-Trichlorophenol		3.23	12.6	25.2	U
120-83-2	2,4-Dichlorophenol		4.03	12.6	25.2	U
105-67-9	2,4-Dimethylphenol		5.20	12.6	25.2	U
51-28-5	2,4-Dinitrophenol		124	378	757	U
121-14-2	2,4-Dinitrotoluene		8.32	101	151	U
606-20-2	2,6-Dinitrotoluene		4.49	50.4	101	U
91-58-7	2-Chloronaphthalene		5.36	12.6	25.2	U
95-57-8	2-Chlorophenol		5.63	12.6	25.2	U
91-57-6	2-Methylnaphthalene		4.88	12.6	25.2	U
95-48-7	2-Methylphenol		2.90	6.31	12.6	U
88-74-4	2-Nitroaniline		3.39	12.6	25.2	U
88-75-5	2-Nitrophenol		3.95	50.4	101	U
91-94-1	3,3'-Dichlorobenzidine		24.0	50.4	101	U
84989-04-8	3 & 4-Methylphenol		9.84	25.2	50.4	U
99-09-2	3-Nitroaniline		6.10	18.9	37.8	U
534-52-1	4,6-Dinitro-2-methylphenol		60.3	189	378	U
101-55-3	4-Bromophenyl-phenylether		6.68	18.9	37.8	U
59-50-7	4-Chloro-3-methylphenol		3.46	12.6	25.2	U
106-47-8	4-Chloroaniline		6.06	18.9	37.8	U
7005-72-3	4-Chlorophenyl-phenylether		6.39	18.9	37.8	U
100-01-6	4-Nitroaniline		5.00	25.2	50.4	U
100-02-7	4-Nitrophenol		81.6	252	504	U
83-32-9	Acenaphthene		5.06	12.6	25.2	U
208-96-8	Acenaphthylene		3.34	12.6	25.2	U

*MW12919*



# 1 - FORM I ANALYSIS DATA SHEET

18111107

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Subsurface Soil	Laboratory ID:	18K0902-03
		File ID:	S18L06007.D
Sampled:	11/27/18 00:00	Prepared:	12/04/18 12:41
		Analyzed:	12/06/18 16:44
Solids:	78.48	Preparation:	3550_B
		Dilution:	1
Initial/Final:	40.4181 g / 1 ml		
Batch:	B8L0091	Sequence:	S8L0079
		Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
120-12-7	Anthracene		2.63	6.31	12.6	U
103-33-3	Azobenzene as 1,2-Diphenylhydrazine		3.61	12.6	25.2	U
92-87-5	Benzidine		52.3	1260	2940	U
56-55-3	Benzo(a)anthracene		1.74	6.31	12.6	U
50-32-8	Benzo(a)pyrene		7.73	50.4	101	U
205-99-2	Benzo(b)fluoranthene		3.93	50.4	101	U
191-24-2	Benzo(g,h,i)perylene		5.60	25.2	50.4	U
207-08-9	Benzo(k)fluoranthene		6.16	25.2	50.4	U
65-85-0	Benzoic acid		125	757	1260	U
100-51-6	Benzyl alcohol		4.86	12.6	25.2	U
111-91-1	Bis(2-chloroethoxy)methane		5.52	12.6	25.2	U
111-44-4	Bis(2-chloroethyl)ether		66.8	189	378	U
108-60-1	Bis(2-chloroisopropyl)ether		85.1	252	504	U
117-81-7	Bis(2-ethylhexyl)phthalate		10.6	37.8	75.7	U
85-68-7	Butyl benzyl phthalate		10.4	37.8	75.7	U
86-74-8	Carbazole		4.25	12.6	25.2	U
218-01-9	Chrysene		4.02	12.6	25.2	U
53-70-3	Dibenzo(a,h)anthracene		3.76	50.4	101	U
132-64-9	Dibenzofuran		5.64	12.6	25.2	U
84-66-2	Diethyl phthalate		3.69	12.6	25.2	U
131-11-3	Dimethyl phthalate		2.31	6.31	12.6	U
84-74-2	Di-n-butyl phthalate		4.68	12.6	25.2	U
117-84-0	Di-n-octyl phthalate		19.0	50.4	101	U
206-44-0	Fluoranthene		3.47	12.6	25.2	U
86-73-7	Fluorene		4.96	12.6	25.2	U
118-74-1	Hexachlorobenzene		4.85	12.6	25.2	U
87-68-3	Hexachlorobutadiene		7.76	25.2	50.4	U
77-47-4	Hexachlorocyclopentadiene		94.8	252	504	U
67-72-1	Hexachloroethane		6.92	252	504	U

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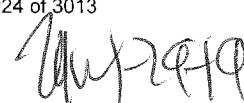
# 1 - FORM I

## ANALYSIS DATA SHEET

18111107

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Subsurface Soil	Laboratory ID:	18K0902-03
		File ID:	S18L06007.D
Sampled:	11/27/18 00:00	Prepared:	12/04/18 12:41
		Analyzed:	12/06/18 16:44
Solids:	78.48	Preparation:	3550_B
		Dilution:	1
Initial/Final:	40.4181 g / 1 ml		
Batch:	B8L0091	Sequence:	S8L0079
		Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
193-39-5	Indeno(1,2,3-cd)pyrene		4.00	50.4	101	U
78-59-1	Isophorone		30.0	75.7	151	U
91-20-3	Naphthalene		6.94	25.2	50.4	U
98-95-3	Nitrobenzene		6.54	25.2	50.4	U
62-75-9	N-Nitrosodimethylamine		9.54	25.2	50.4	U
621-64-7	N-Nitrosodi-n-propylamine		11.8	37.8	75.7	U
86-30-6	N-Nitrosodiphenylamine		3.58	12.6	25.2	U
87-86-5	Pentachlorophenol		67.9	189	378	U
85-01-8	Phenanthrene		5.54	12.6	25.2	U
108-95-2	Phenol		6.96	25.2	50.4	U
129-00-0	Pyrene		1.79	6.31	12.6	U



# 1 - FORM I ANALYSIS DATA SHEET

18111108

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Subsurface Soil	Laboratory ID:	18K0902-04
		File ID:	S18L06012.D
Sampled:	11/27/18 00:00	Prepared:	12/04/18 12:41
		Analyzed:	12/06/18 19:38
Solids:	77.87	Preparation:	3550_B
		Dilution:	1
Initial/Final:	40.754 g / 1 ml		
Batch:	B8L0091	Sequence:	S8L0079
		Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
120-82-1	1,2,4-Trichlorobenzene		7.36	25.2	50.4	U
95-50-1	1,2-Dichlorobenzene		8.45	25.2	50.4	U
541-73-1	1,3-Dichlorobenzene		7.39	25.2	50.4	U
106-46-7	1,4-Dichlorobenzene		9.63	25.2	50.4	U
95-95-4	2,4,5-Trichlorophenol		4.48	12.6	25.2	U
88-06-2	2,4,6-Trichlorophenol		3.23	12.6	25.2	U
120-83-2	2,4-Dichlorophenol		4.03	12.6	25.2	U
105-67-9	2,4-Dimethylphenol		5.20	12.6	25.2	U
51-28-5	2,4-Dinitrophenol		124	378	756	U
121-14-2	2,4-Dinitrotoluene		8.31	101	151	U
606-20-2	2,6-Dinitrotoluene		4.49	50.4	101	U
91-58-7	2-Chloronaphthalene		5.35	12.6	25.2	U
95-57-8	2-Chlorophenol		5.63	12.6	25.2	U
91-57-6	2-Methylnaphthalene		4.88	12.6	25.2	U
95-48-7	2-Methylphenol		2.90	6.30	12.6	U
88-74-4	2-Nitroaniline		3.39	12.6	25.2	U
88-75-5	2-Nitrophenol		3.94	50.4	101	U
91-94-1	3,3'-Dichlorobenzidine		24.0	50.4	101	U
84989-04-8	3 & 4-Methylphenol		9.83	25.2	50.4	U
99-09-2	3-Nitroaniline		6.10	18.9	37.8	U
534-52-1	4,6-Dinitro-2-methylphenol		60.2	189	378	U
101-55-3	4-Bromophenyl-phenylether		6.68	18.9	37.8	U
59-50-7	4-Chloro-3-methylphenol		3.46	12.6	25.2	U
106-47-8	4-Chloroaniline		6.06	18.9	37.8	U
7005-72-3	4-Chlorophenyl-phenylether		6.39	18.9	37.8	U
100-01-6	4-Nitroaniline		5.00	25.2	50.4	U
100-02-7	4-Nitrophenol		81.5	252	504	U
83-32-9	Acenaphthene		5.06	12.6	25.2	U
208-96-8	Acenaphthylene		3.34	12.6	25.2	U

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# 1 - FORM I ANALYSIS DATA SHEET

18111108

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Subsurface Soil	Laboratory ID:	18K0902-04
		File ID:	S18L06012.D
Sampled:	11/27/18 00:00	Prepared:	12/04/18 12:41
		Analyzed:	12/06/18 19:38
Solids:	77.87	Preparation:	3550_B
		Dilution:	1
Initial/Final:	40.754 g / 1 ml		
Batch:	B8L0091	Sequence:	S8L0079
		Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
120-12-7	Anthracene		2.63	6.30	12.6	U
103-33-3	Azobenzene as 1,2-Diphenylhydrazine		3.60	12.6	25.2	U
92-87-5	Benzidine		52.3	1260	2940	U
56-55-3	Benzo(a)anthracene		1.74	6.30	12.6	U
50-32-8	Benzo(a)pyrene		7.73	50.4	101	U
205-99-2	Benzo(b)fluoranthene		3.93	50.4	101	U
191-24-2	Benzo(g,h,i)perylene		5.60	25.2	50.4	U
207-08-9	Benzo(k)fluoranthene		6.16	25.2	50.4	U
65-85-0	Benzoic acid		125	756	1260	U
100-51-6	Benzyl alcohol		4.86	12.6	25.2	U
111-91-1	Bis(2-chloroethoxy)methane		5.52	12.6	25.2	U
111-44-4	Bis(2-chloroethyl)ether		66.8	189	378	U
108-60-1	Bis(2-chloroisopropyl)ether		85.1	252	504	U
117-81-7	Bis(2-ethylhexyl)phthalate		10.6	37.8	75.6	U
85-68-7	Butyl benzyl phthalate		10.4	37.8	75.6	U
86-74-8	Carbazole		4.25	12.6	25.2	U
218-01-9	Chrysene		4.01	12.6	25.2	U
53-70-3	Dibenzo(a,h)anthracene		3.76	50.4	101	U
132-64-9	Dibenzofuran		5.64	12.6	25.2	U
84-66-2	Diethyl phthalate		3.69	12.6	25.2	U
131-11-3	Dimethyl phthalate		2.31	6.30	12.6	U
84-74-2	Di-n-butyl phthalate		4.68	12.6	25.2	U
117-84-0	Di-n-octyl phthalate		19.0	50.4	101	U
206-44-0	Fluoranthene		3.47	12.6	25.2	U
86-73-7	Fluorene		4.96	12.6	25.2	U
118-74-1	Hexachlorobenzene		4.85	12.6	25.2	U
87-68-3	Hexachlorobutadiene		7.76	25.2	50.4	U
77-47-4	Hexachlorocyclopentadiene		94.8	252	504	U
67-72-1	Hexachloroethane		6.91	252	504	U

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# 1 - FORM I

## ANALYSIS DATA SHEET

18111108

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Subsurface Soil	Laboratory ID:	18K0902-04
		File ID:	S18L06012.D
Sampled:	11/27/18 00:00	Prepared:	12/04/18 12:41
		Analyzed:	12/06/18 19:38
Solids:	77.87	Preparation:	3550_B
		Dilution:	1
Initial/Final:	40.754 g / 1 ml		
Batch:	B8L0091	Sequence:	S8L0079
		Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
193-39-5	Indeno(1,2,3-cd)pyrene		4.00	50.4	101	U
78-59-1	Isophorone		30.0	75.6	151	U
91-20-3	Naphthalene		6.93	25.2	50.4	U
98-95-3	Nitrobenzene		6.54	25.2	50.4	U
62-75-9	N-Nitrosodimethylamine		9.54	25.2	50.4	U
621-64-7	N-Nitrosodi-n-propylamine		11.8	37.8	75.6	U
86-30-6	N-Nitrosodiphenylamine		3.58	12.6	25.2	U
87-86-5	Pentachlorophenol		67.8	189	378	U
85-01-8	Phenanthrene		5.54	12.6	25.2	U
108-95-2	Phenol		6.96	25.2	50.4	U
129-00-0	Pyrene		1.79	6.30	12.6	U

7/10/2019

# 1 - FORM I

## ANALYSIS DATA SHEET

18111110

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Subsurface Soil	Laboratory ID:	18K0933-01
		File ID:	S18L06013.D
Sampled:	11/28/18 08:20	Prepared:	12/04/18 12:41
		Analyzed:	12/06/18 20:12
Solids:	85.56	Preparation:	3550_B
		Dilution:	1
Initial/Final:	40.6055 g / 1 ml		
Batch:	B8L0091	Sequence:	S8L0079
		Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
120-82-1	1,2,4-Trichlorobenzene		6.72	23.0	46.1	U
95-50-1	1,2-Dichlorobenzene		7.72	23.0	46.1	U
541-73-1	1,3-Dichlorobenzene		6.75	23.0	46.1	U
106-46-7	1,4-Dichlorobenzene		8.80	23.0	46.1	U
95-95-4	2,4,5-Trichlorophenol		4.09	11.5	23.0	U
88-06-2	2,4,6-Trichlorophenol		2.95	11.5	23.0	U
120-83-2	2,4-Dichlorophenol		3.68	11.5	23.0	U
105-67-9	2,4-Dimethylphenol		4.75	11.5	23.0	U
51-28-5	2,4-Dinitrophenol		114	345	691	U
121-14-2	2,4-Dinitrotoluene		7.59	92.1	138	U
606-20-2	2,6-Dinitrotoluene		4.10	46.1	92.1	U
91-58-7	2-Chloronaphthalene		4.89	11.5	23.0	U
95-57-8	2-Chlorophenol		5.14	11.5	23.0	U
91-57-6	2-Methylnaphthalene		4.45	11.5	23.0	U
95-48-7	2-Methylphenol		2.65	5.76	11.5	U
88-74-4	2-Nitroaniline		3.10	11.5	23.0	U
88-75-5	2-Nitrophenol		3.60	46.1	92.1	U
91-94-1	3,3'-Dichlorobenzidine		21.9	46.1	92.1	U
84989-04-8	3 & 4-Methylphenol		8.98	23.0	46.1	U
99-09-2	3-Nitroaniline		5.57	17.3	34.5	U
534-52-1	4,6-Dinitro-2-methylphenol		55.0	173	345	U
101-55-3	4-Bromophenyl-phenylether		6.10	17.3	34.5	U
59-50-7	4-Chloro-3-methylphenol		3.16	11.5	23.0	U
106-47-8	4-Chloroaniline		5.53	17.3	34.5	U
7005-72-3	4-Chlorophenyl-phenylether		5.84	17.3	34.5	U
100-01-6	4-Nitroaniline		4.57	23.0	46.1	U
100-02-7	4-Nitrophenol		74.5	230	461	U
83-32-9	Acenaphthene		4.62	11.5	23.0	U
208-96-8	Acenaphthylene		3.05			U

*MW 12/29/19*



# 1 - FORM I ANALYSIS DATA SHEET

18111110

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Subsurface Soil	Laboratory ID:	18K0933-01
		File ID:	S18L06013.D
Sampled:	11/28/18 08:20	Prepared:	12/04/18 12:41
		Analyzed:	12/06/18 20:12
Solids:	85.56	Preparation:	3550_B
		Dilution:	1
Initial/Final:	40.6055 g / 1 ml		
Batch:	B8L0091	Sequence:	S8L0079
		Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
120-12-7	Anthracene		2.40	5.76	11.5	U
103-33-3	Azobenzene as 1,2-Diphenylhydrazine		3.29	11.5	23.0	U
92-87-5	Benzidine		47.7	1150	2690	U
56-55-3	Benzo(a)anthracene		1.59	5.76	11.5	U
50-32-8	Benzo(a)pyrene		7.06	46.1	92.1	U
205-99-2	Benzo(b)fluoranthene		3.59	46.1	92.1	U
191-24-2	Benzo(g,h,i)perylene		5.12	23.0	46.1	U
207-08-9	Benzo(k)fluoranthene		5.62	23.0	46.1	U
65-85-0	Benzoic acid		114	691	1150	U
100-51-6	Benzyl alcohol		4.43	11.5	23.0	U
111-91-1	Bis(2-chloroethoxy)methane		5.04	11.5	23.0	U
111-44-4	Bis(2-chloroethyl)ether		61.0	173	345	U
108-60-1	Bis(2-chloroisopropyl)ether		77.7	230	461	U
117-81-7	Bis(2-ethylhexyl)phthalate		9.66	34.5	69.1	U
85-68-7	Butyl benzyl phthalate		9.54	34.5	69.1	U
86-74-8	Carbazole		3.88	11.5	23.0	U
218-01-9	Chrysene		3.67	11.5	23.0	U
53-70-3	Dibenzo(a,h)anthracene		3.43	46.1	92.1	U
132-64-9	Dibenzofuran		5.15	11.5	23.0	U
84-66-2	Diethyl phthalate		3.37	11.5	23.0	U
131-11-3	Dimethyl phthalate		2.11	5.76	11.5	U
84-74-2	Di-n-butyl phthalate	<del>15.0</del>	4.27	11.5	23.0	U <i>Am</i>
117-84-0	Di-n-octyl phthalate		17.4	46.1	92.1	U
206-44-0	Fluoranthene		3.17	11.5	23.0	U
86-73-7	Fluorene		4.53	11.5	23.0	U
118-74-1	Hexachlorobenzene		4.43	11.5	23.0	U
87-68-3	Hexachlorobutadiene		7.09	23.0	46.1	U
77-47-4	Hexachlorocyclopentadiene		86.6	230	461	U
67-72-1	Hexachloroethane		6.31	230	461	U

*MW 12940*

# 1 - FORM I

## ANALYSIS DATA SHEET

18111110

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Subsurface Soil	Laboratory ID:	18K0933-01
		File ID:	S18L06013.D
Sampled:	11/28/18 08:20	Prepared:	12/04/18 12:41
		Analyzed:	12/06/18 20:12
Solids:	85.56	Preparation:	3550_B
		Dilution:	1
Initial/Final:	40.6055 g / 1 ml		
Batch:	B8L0091	Sequence:	S8L0079
		Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
193-39-5	Indeno(1,2,3-cd)pyrene		3.65	46.1	92.1	U
78-59-1	Isophorone		27.4	69.1	138	U
91-20-3	Naphthalene		6.33	23.0	46.1	U
98-95-3	Nitrobenzene		5.97	23.0	46.1	U
62-75-9	N-Nitrosodimethylamine		8.71	23.0	46.1	U
621-64-7	N-Nitrosodi-n-propylamine		10.8	34.5	69.1	U
86-30-6	N-Nitrosodiphenylamine		3.27	11.5	23.0	U
87-86-5	Pentachlorophenol		62.0	173	345	U
85-01-8	Phenanthrene		5.06	11.5	23.0	U
108-95-2	Phenol		6.36	23.0	46.1	U
129-00-0	Pyrene	6.91	1.63	5.76	11.5	JQ

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# 1 - FORM I

## ANALYSIS DATA SHEET

18111111

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Subsurface Soil	Laboratory ID:	18K0933-02
Sampled:	11/28/18 09:20	Prepared:	12/04/18 12:41
Solids:	84.86	Preparation:	3550_B
Initial/Final:	40.5823 g / 1 ml	Analyzed:	12/06/18 20:45
Batch:	B8L0091	Sequence:	S8L0079
		Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
120-82-1	1,2,4-Trichlorobenzene		6.78	23.2	46.5	U
95-50-1	1,2-Dichlorobenzene		7.79	23.2	46.5	U
541-73-1	1,3-Dichlorobenzene		6.81	23.2	46.5	U
106-46-7	1,4-Dichlorobenzene		8.88	23.2	46.5	U
95-95-4	2,4,5-Trichlorophenol		4.13	11.6	23.2	U
88-06-2	2,4,6-Trichlorophenol		2.97	11.6	23.2	U
120-83-2	2,4-Dichlorophenol		3.72	11.6	23.2	U
105-67-9	2,4-Dimethylphenol		4.79	11.6	23.2	U
51-28-5	2,4-Dinitrophenol		115	348	697	U
121-14-2	2,4-Dinitrotoluene		7.66	92.9	139	U
606-20-2	2,6-Dinitrotoluene		4.13	46.5	92.9	U
91-58-7	2-Chloronaphthalene		4.93	11.6	23.2	U
95-57-8	2-Chlorophenol		5.18	11.6	23.2	U
91-57-6	2-Methylnaphthalene		4.49	11.6	23.2	U
95-48-7	2-Methylphenol		2.67	5.81	11.6	U
88-74-4	2-Nitroaniline		3.13	11.6	23.2	U
88-75-5	2-Nitrophenol		3.63	46.5	92.9	U
91-94-1	3,3'-Dichlorobenzidine		22.1	46.5	92.9	U
84989-04-8	3 & 4-Methylphenol		9.06	23.2	46.5	U
99-09-2	3-Nitroaniline		5.62	17.4	34.8	U
534-52-1	4,6-Dinitro-2-methylphenol		55.5	174	348	U
101-55-3	4-Bromophenyl-phenylether		6.15	17.4	34.8	U
59-50-7	4-Chloro-3-methylphenol		3.19	11.6	23.2	U
106-47-8	4-Chloroaniline		5.58	17.4	34.8	U
7005-72-3	4-Chlorophenyl-phenylether		5.89	17.4	34.8	U
100-01-6	4-Nitroaniline		4.61	23.2	46.5	U
100-02-7	4-Nitrophenol		75.1	232	465	U
83-32-9	Acenaphthene		4.66	11.6	23.2	U
208-96-8	Acenaphthylene		3.08			U

2018-29-19

# 1 - FORM I ANALYSIS DATA SHEET

18111111

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Subsurface Soil	Laboratory ID:	18K0933-02
		File ID:	S18L06014.D
Sampled:	11/28/18 09:20	Prepared:	12/04/18 12:41
		Analyzed:	12/06/18 20:45
Solids:	84.86	Preparation:	3550_B
		Dilution:	1
Initial/Final:	40.5823 g / 1 ml		
Batch:	B8L0091	Sequence:	S8L0079
		Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
120-12-7	Anthracene		2.42	5.81	11.6	U
103-33-3	Azobenzene as 1,2-Diphenylhydrazine		3.32	11.6	23.2	U
92-87-5	Benzidine		48.2	1160	2710	U
56-55-3	Benzo(a)anthracene		1.60	5.81	11.6	U
50-32-8	Benzo(a)pyrene		7.12	46.5	92.9	U
205-99-2	Benzo(b)fluoranthene		3.62	46.5	92.9	U
191-24-2	Benzo(g,h,i)perylene		5.16	23.2	46.5	U
207-08-9	Benzo(k)fluoranthene		5.67	23.2	46.5	U
65-85-0	Benzoic acid		115	697	1160	U
100-51-6	Benzyl alcohol		4.47	11.6	23.2	U
111-91-1	Bis(2-chloroethoxy)methane		5.08	11.6	23.2	U
111-44-4	Bis(2-chloroethyl)ether		61.6	174	348	U
108-60-1	Bis(2-chloroisopropyl)ether		78.4	232	465	U
117-81-7	Bis(2-ethylhexyl)phthalate		9.75	34.8	69.7	U
85-68-7	Butyl benzyl phthalate		9.62	34.8	69.7	U
86-74-8	Carbazole		3.91	11.6	23.2	U
218-01-9	Chrysene		3.70	11.6	23.2	U
53-70-3	Dibenzo(a,h)anthracene		3.46	46.5	92.9	U
132-64-9	Dibenzofuran		5.20	11.6	23.2	U
84-66-2	Diethyl phthalate		3.40	11.6	23.2	U
131-11-3	Dimethyl phthalate		2.13	5.81	11.6	U
84-74-2	Di-n-butyl phthalate		4.31	11.6	23.2	U
117-84-0	Di-n-octyl phthalate		17.5	46.5	92.9	U
206-44-0	Fluoranthene		3.19	11.6	23.2	U
86-73-7	Fluorene		4.57	11.6	23.2	U
118-74-1	Hexachlorobenzene		4.47	11.6	23.2	U
87-68-3	Hexachlorobutadiene		7.15	23.2	46.5	U
77-47-4	Hexachlorocyclopentadiene		87.4	232	465	U
67-72-1	Hexachloroethane		6.37	23.2	46.5	U

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# 1 - FORM I

## ANALYSIS DATA SHEET

18111111

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Subsurface Soil	Laboratory ID:	18K0933-02
		File ID:	S18L06014.D
Sampled:	11/28/18 09:20	Prepared:	12/04/18 12:41
		Analyzed:	12/06/18 20:45
Solids:	84.86	Preparation:	3550_B
		Dilution:	1
Initial/Final:	40.5823 g / 1 ml		
Batch:	B8L0091	Sequence:	S8L0079
		Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
193-39-5	Indeno(1,2,3-cd)pyrene		3.69	46.5	92.9	U
78-59-1	Isophorone		27.6	69.7	139	U
91-20-3	Naphthalene		6.39	23.2	46.5	U
98-95-3	Nitrobenzene		6.03	23.2	46.5	U
62-75-9	N-Nitrosodimethylamine		8.79	23.2	46.5	U
621-64-7	N-Nitrosodi-n-propylamine		10.9	34.8	69.7	U
86-30-6	N-Nitrosodiphenylamine		3.30	11.6	23.2	U
87-86-5	Pentachlorophenol		62.5	174	348	U
85-01-8	Phenanthrene		5.11	11.6	23.2	U
108-95-2	Phenol		6.41	23.2	46.5	U
129-00-0	Pyrene		1.65	5.81	11.6	U

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# 1 - FORM I

## ANALYSIS DATA SHEET

18111112

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Subsurface Soil	Laboratory ID:	18K0933-03
		File ID:	S18L06015.D
Sampled:	11/28/18 11:18	Prepared:	12/04/18 12:41
		Analyzed:	12/06/18 21:19
Solids:	83.16	Preparation:	3550_B
		Dilution:	1
Initial/Final:	40.8787 g / 1 ml		
Batch:	B8L0091	Sequence:	S8L0079
		Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
120-82-1	1,2,4-Trichlorobenzene		6.87	23.5	47.1	U
95-50-1	1,2-Dichlorobenzene		7.89	23.5	47.1	U
541-73-1	1,3-Dichlorobenzene		6.90	23.5	47.1	U
106-46-7	1,4-Dichlorobenzene		8.99	23.5	47.1	U
95-95-4	2,4,5-Trichlorophenol		4.18	11.8	23.5	U
88-06-2	2,4,6-Trichlorophenol		3.01	11.8	23.5	U
120-83-2	2,4-Dichlorophenol		3.76	11.8	23.5	U
105-67-9	2,4-Dimethylphenol		4.85	11.8	23.5	U
51-28-5	2,4-Dinitrophenol		116	353	706	U
121-14-2	2,4-Dinitrotoluene		7.76	94.1	141	U
606-20-2	2,6-Dinitrotoluene		4.19	47.1	94.1	U
91-58-7	2-Chloronaphthalene		5.00	11.8	23.5	U
95-57-8	2-Chlorophenol		5.25	11.8	23.5	U
91-57-6	2-Methylnaphthalene		4.55	11.8	23.5	U
95-48-7	2-Methylphenol		2.70	5.88	11.8	U
88-74-4	2-Nitroaniline		3.17	11.8	23.5	U
88-75-5	2-Nitrophenol		3.68	47.1	94.1	U
91-94-1	3,3'-Dichlorobenzidine		22.4	47.1	94.1	U
84989-04-8	3 & 4-Methylphenol		9.18	23.5	47.1	U
99-09-2	3-Nitroaniline		5.70	17.7	35.3	U
534-52-1	4,6-Dinitro-2-methylphenol		56.2	177	353	U
101-55-3	4-Bromophenyl-phenylether		6.23	17.7	35.3	U
59-50-7	4-Chloro-3-methylphenol		3.23	11.8	23.5	U
106-47-8	4-Chloroaniline		5.65	17.7	35.3	U
7005-72-3	4-Chlorophenyl-phenylether		5.97	17.7	35.3	U
100-01-6	4-Nitroaniline		4.67	23.5	47.1	U
100-02-7	4-Nitrophenol		76.1	235	471	U
83-32-9	Acenaphthene		4.72	11.8	23.5	U
208-96-8	Acenaphthylene		3.12			U

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# 1 - FORM I

## ANALYSIS DATA SHEET

18111112

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Subsurface Soil	Laboratory ID:	18K0933-03
		File ID:	S18L06015.D
Sampled:	11/28/18 11:18	Prepared:	12/04/18 12:41
		Analyzed:	12/06/18 21:19
Solids:	83.16	Preparation:	3550_B
		Dilution:	1
Initial/Final:	40.8787 g / 1 ml		
Batch:	B8L0091	Sequence:	S8L0079
		Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
120-12-7	Anthracene		2.45	5.88	11.8	U
103-33-3	Azobenzene as 1,2-Diphenylhydrazine		3.36	11.8	23.5	U
92-87-5	Benidine		48.8	1180	2750	U
56-55-3	Benzo(a)anthracene		1.62	5.88	11.8	U
50-32-8	Benzo(a)pyrene		7.21	47.1	94.1	U
205-99-2	Benzo(b)fluoranthene		3.67	47.1	94.1	U
191-24-2	Benzo(g,h,i)perylene		5.23	23.5	47.1	U
207-08-9	Benzo(k)fluoranthene		5.75	23.5	47.1	U
65-85-0	Benzoic acid		117	706	1180	U
100-51-6	Benzyl alcohol		4.53	11.8	23.5	U
111-91-1	Bis(2-chloroethoxy)methane		5.15	11.8	23.5	U
111-44-4	Bis(2-chloroethyl)ether		62.4	177	353	U
108-60-1	Bis(2-chloroisopropyl)ether		79.4	235	471	U
117-81-7	Bis(2-ethylhexyl)phthalate		9.87	35.3	70.6	U
85-68-7	Butyl benzyl phthalate		9.75	35.3	70.6	U
86-74-8	Carbazole		3.97	11.8	23.5	U
218-01-9	Chrysene		3.75	11.8	23.5	U
53-70-3	Dibenzo(a,h)anthracene		3.51	47.1	94.1	U
132-64-9	Dibenzofuran		5.27	11.8	23.5	U
84-66-2	Diethyl phthalate		3.44	11.8	23.5	U
131-11-3	Dimethyl phthalate		2.16	5.88	11.8	U
84-74-2	Di-n-butyl phthalate	11.5	4.36	11.8	23.5	U
117-84-0	Di-n-octyl phthalate		17.8	47.1	94.1	U
206-44-0	Fluoranthene		3.24	11.8	23.5	U
86-73-7	Fluorene		4.63	11.8	23.5	U
118-74-1	Hexachlorobenzene		4.53	11.8	23.5	U
87-68-3	Hexachlorobutadiene		7.24	23.5	47.1	U
77-47-4	Hexachlorocyclopentadiene		88.5	235	471	U
67-72-1	Hexachloroethane		6.45	235	471	U

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# 1 - FORM I

## ANALYSIS DATA SHEET

18111112

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Subsurface Soil	Laboratory ID:	18K0933-03
		File ID:	S18L06015.D
Sampled:	11/28/18 11:18	Prepared:	12/04/18 12:41
		Analyzed:	12/06/18 21:19
Solids:	83.16	Preparation:	3550_B
		Dilution:	1
Initial/Final:	40.8787 g / 1 ml		
Batch:	B8L0091	Sequence:	S8L0079
		Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
193-39-5	Indeno(1,2,3-cd)pyrene		3.73	47.1	94.1	U
78-59-1	Isophorone		28.0	70.6	141	U
91-20-3	Naphthalene		6.47	23.5	47.1	U
98-95-3	Nitrobenzene		6.10	23.5	47.1	U
62-75-9	N-Nitrosodimethylamine		8.90	23.5	47.1	U
621-64-7	N-Nitrosodi-n-propylamine		11.0	35.3	70.6	U
86-30-6	N-Nitrosodiphenylamine		3.34	11.8	23.5	U
87-86-5	Pentachlorophenol		63.3	177	353	U
85-01-8	Phenanthrene		5.17	11.8	23.5	U
108-95-2	Phenol		6.50	23.5	47.1	U
129-00-0	Pyrene		1.67	5.88	11.8	U

*11/29/19*

# 1 - FORM I

## ANALYSIS DATA SHEET

18111113

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Subsurface Soil	Laboratory ID:	18K0933-04
		File ID:	S18L06016.D
Sampled:	11/28/18 13:50	Prepared:	12/04/18 12:41
		Analyzed:	12/06/18 21:52
Solids:	80.84	Preparation:	3550_B
		Dilution:	1
Initial/Final:	40.7286 g / 1 ml		
Batch:	B8L0091	Sequence:	S8L0079
		Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
120-82-1	1,2,4-Trichlorobenzene		7.09	24.3	48.6	U
95-50-1	1,2-Dichlorobenzene		8.15	24.3	48.6	U
541-73-1	1,3-Dichlorobenzene		7.12	24.3	48.6	U
106-46-7	1,4-Dichlorobenzene		9.29	24.3	48.6	U
95-95-4	2,4,5-Trichlorophenol		4.32	12.1	24.3	U
88-06-2	2,4,6-Trichlorophenol		3.11	12.1	24.3	U
120-83-2	2,4-Dichlorophenol		3.89	12.1	24.3	U
105-67-9	2,4-Dimethylphenol		5.01	12.1	24.3	U
51-28-5	2,4-Dinitrophenol		120	364	729	U
121-14-2	2,4-Dinitrotoluene		8.01	97.2	146	U
606-20-2	2,6-Dinitrotoluene		4.32	48.6	97.2	U
91-58-7	2-Chloronaphthalene		5.16	12.1	24.3	U
95-57-8	2-Chlorophenol		5.42	12.1	24.3	U
91-57-6	2-Methylnaphthalene		4.70	12.1	24.3	U
95-48-7	2-Methylphenol		2.79	6.07	12.1	U
88-74-4	2-Nitroaniline		3.27	12.1	24.3	U
88-75-5	2-Nitrophenol		3.80	48.6	97.2	U
91-94-1	3,3'-Dichlorobenzidine		23.2	48.6	97.2	U
84989-04-8	3 & 4-Methylphenol		9.48	24.3	48.6	U
99-09-2	3-Nitroaniline		5.88	18.2	36.4	U
534-52-1	4,6-Dinitro-2-methylphenol		58.1	182	364	U
101-55-3	4-Bromophenyl-phenylether		6.44	18.2	36.4	U
59-50-7	4-Chloro-3-methylphenol		3.33	12.1	24.3	U
106-47-8	4-Chloroaniline		5.84	18.2	36.4	U
7005-72-3	4-Chlorophenyl-phenylether		6.16	18.2	36.4	U
100-01-6	4-Nitroaniline		4.82	24.3	48.6	U
100-02-7	4-Nitrophenol		78.6	243	486	U
83-32-9	Acenaphthene		4.88	12.1	24.3	U
208-96-8	Acenaphthylene		3.22			U

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# 1 - FORM I

## ANALYSIS DATA SHEET

18111113

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Subsurface Soil	Laboratory ID:	18K0933-04
		File ID:	S18L06016.D
Sampled:	11/28/18 13:50	Prepared:	12/04/18 12:41
		Analyzed:	12/06/18 21:52
Solids:	80.84	Preparation:	3550_B
		Dilution:	1
Initial/Final:	40.7286 g / 1 ml		
Batch:	B8L0091	Sequence:	S8L0079
		Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
120-12-7	Anthracene	38.9	2.53	6.07	12.1	
103-33-3	Azobenzene as 1,2-Diphenylhydrazine		3.47	12.1	24.3	U
92-87-5	Benzidine		50.4	1210	2830	U
56-55-3	Benzo(a)anthracene	35.5	1.67	6.07	12.1	
50-32-8	Benzo(a)pyrene	87.5	7.45	48.6	97.2	JQ
205-99-2	Benzo(b)fluoranthene	139	3.79	48.6	97.2	
191-24-2	Benzo(g,h,i)perylene	39.2	5.40	24.3	48.6	JQ
207-08-9	Benzo(k)fluoranthene	46.2	5.93	24.3	48.6	JQ
65-85-0	Benzoic acid		121	729	1210	U
100-51-6	Benzyl alcohol		4.68	12.1	24.3	U
111-91-1	Bis(2-chloroethoxy)methane		5.32	12.1	24.3	U
111-44-4	Bis(2-chloroethyl)ether		64.4	182	364	U
108-60-1	Bis(2-chloroisopropyl)ether		82.0	243	486	U
117-81-7	Bis(2-ethylhexyl)phthalate	25.5	10.2	36.4	72.9	JQ
85-68-7	Butyl benzyl phthalate		10.1	36.4	72.9	U
86-74-8	Carbazole		4.09	12.1	24.3	U
218-01-9	Chrysene	88.1	3.87	12.1	24.3	
53-70-3	Dibenzo(a,h)anthracene		3.62	48.6	97.2	U
132-64-9	Dibenzofuran		5.44	12.1	24.3	U
84-66-2	Diethyl phthalate		3.55	12.1	24.3	U
131-11-3	Dimethyl phthalate	3.64	2.23	6.07	12.1	JQ
84-74-2	Di-n-butyl phthalate		4.51	12.1	24.3	U
117-84-0	Di-n-octyl phthalate		18.3	48.6	97.2	U
206-44-0	Fluoranthene	14.0	3.34	12.1	24.3	JQ
86-73-7	Fluorene		4.78	12.1	24.3	U
118-74-1	Hexachlorobenzene		4.68	12.1	24.3	U
87-68-3	Hexachlorobutadiene		7.48	24.3	48.6	U
77-47-4	Hexachlorocyclopentadiene		91.4	243	486	U
67-72-1	Hexachloroethane		6.66	243	486	U

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## ANALYSIS DATA SHEET

18111113

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Subsurface Soil	Laboratory ID:	18K0933-04
		File ID:	S18L06016.D
Sampled:	11/28/18 13:50	Prepared:	12/04/18 12:41
		Analyzed:	12/06/18 21:52
Solids:	80.84	Preparation:	3550_B
		Dilution:	1
Initial/Final:	40.7286 g / 1 ml		
Batch:	B8L0091	Sequence:	S8L0079
		Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
193-39-5	Indeno(1,2,3-cd)pyrene	47.7	3.86	48.6	97.2	JQ
78-59-1	Isophorone		28.9	72.9	146	U
91-20-3	Naphthalene		6.68	24.3	48.6	U
98-95-3	Nitrobenzene		6.30	24.3	48.6	U
62-75-9	N-Nitrosodimethylamine		9.19	24.3	48.6	U
621-64-7	N-Nitrosodi-n-propylamine		11.4	36.4	72.9	U
86-30-6	N-Nitrosodiphenylamine		3.45	12.1	24.3	U
87-86-5	Pentachlorophenol		65.4	182	364	U
85-01-8	Phenanthrene		5.34	12.1	24.3	U
108-95-2	Phenol		6.71	24.3	48.6	U
129-00-0	Pyrene	28.6	1.72	6.07	12.1	

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## ecology and environment, inc.

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### MEMORANDUM

DATE: August 14, 2019

TO: Seth Wing, START-IV Project Manager, E & E, Seattle, WA

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington *MW*

SUBJ: **Organic Data Quality Assurance Review, May Creek Removal Action Site, Renton, Washington**

REF: TO: TO-68HE0718F0470 PAN: 1004530.0470.001.01

The data quality assurance review of 13 soil samples collected from the May Creek Removal Action site located in Renton, Washington, has been completed. Analysis for Extended Diesel Range Total Petroleum Hydrocarbons (Ecology Method NWTPH-Dx) was performed by Test America, Inc., Spokane, Washington. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Manual Process (S2B/4VM).

The samples were numbered:

19070112	19070113	19070114	19070115	19070116	19070117
19070118	19070119	19070120	19070121	19070122	19070123
19070124					

#### Data Qualifications:

##### 1. Sample Holding Times: Acceptable.

The samples were maintained at  $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ . The samples were collected on July 11, 2019, extracted on July 15, 2019, and analyzed by July 15, 2019, therefore meeting QC criteria of less than 14 days between collection and extraction for soil samples and less than 40 days between extraction and analysis.

##### 2. Initial Calibration: Acceptable.

Calculations were verified as correct. All relative percent differences (RPDs) were within the laboratory control limits.

##### 3. Continuing Calibration: Acceptable.

Calculations were verified as correct. All percent differences (%Ds) were within the laboratory control limits.

##### 4. Blanks: Acceptable.



A method blank was analyzed for each extraction batch for each matrix and analysis system. Diesel- and motor oil-range TPHs were not detected in the method blank.

**5. System Monitoring Compounds (SMC): Acceptable.**

All recoveries of the SMCs were greater than 10% and within QC limits.

**6. Blank Spike (BS): Acceptable.**

BS recoveries were within QC limits.

**7. Duplicates: Satisfactory.**

All duplicate results were within QC limits except the DRO field duplicate of sample 19070114; the associated result in sample 19070114 was qualified as an estimated quantity with an unknown bias (JK).

**8. Quantitation and Quantitation Limits: Acceptable.**

Sample concentrations were correctly calculated.

**9. Laboratory Contact: Not Required.**

No laboratory contact was required.

**10. Overall Assessment of Data for Use**

From the case narrative - Detected hydrocarbons in the diesel range appear to be due to oil overlap: 19070113, 19070114, 19070116, and 19070122. Associated positive results were qualified as estimated quantities with a high bias (JH).

A total of 26 results were validated in this data memorandum. No sample results were qualified as estimated quantities (J) based on spike accuracy outliers, holding time outliers, incorrect sample containers, or sample temperature outliers. No sample results were rejected (R). A total of 1 sample result was qualified as an estimated quantity based on duplicate precision outliers.

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the analytical method(s), the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, and/or the Office of Emergency and Remedial Response Publication "National Functional Guidelines for Superfund Organic Methods Data Review, January 2017". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

H - The sample result is biased high.

J - The result is an estimated quantity. The associated numerical value is the approximate

concentration of the analyte in the sample.

- K - The bias of the sample is not known.
- L - The sample result is biased low.
- Q - Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.
- R - The data is rejected and unusable. The analyte may or may not be present in the sample.
- U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.

FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Spokane Job No.: 590-11386-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070112 Lab Sample ID: 590-11386-1  
 Matrix: Solid Lab File ID: 590-0005722-005.D  
 Analysis Method: NWTPH-Dx Date Collected: 07/11/2019 14:55  
 Extraction Method: 3550C Date Extracted: 07/15/2019 12:26  
 Sample wt/vol: 15.45(g) Date Analyzed: 07/15/2019 16:21  
 Con. Extract Vol.: 5(mL) Dilution Factor: 1  
 Injection Volume: 2(uL) GC Column: ZB-1HT B ID: 0.25 (mm)  
 % Moisture: 12.2 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 23015 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00258	Diesel Range Organics (DRO) (C10-C25)	240		11	4.6
STL00383	Residual Range Organics (RRO) (C25-C36)	630		28	5.5

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	88		50-150
93952-07-9	n-Triacontane-d62	104		50-150

FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Spokane Job No.: 590-11386-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070113 Lab Sample ID: 590-11386-2  
 Matrix: Solid Lab File ID: 590-0005722-006.D  
 Analysis Method: NWTPH-Dx Date Collected: 07/11/2019 15:02  
 Extraction Method: 3550C Date Extracted: 07/15/2019 12:26  
 Sample wt/vol: 15.06(g) Date Analyzed: 07/15/2019 16:41  
 Con. Extract Vol.: 5(mL) Dilution Factor: 1  
 Injection Volume: 2(uL) GC Column: ZB-1HT B ID: 0.25 (mm)  
 % Moisture: 12.0 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 23015 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00258	Diesel Range Organics (DRO) (C10-C25)	60	34	11	4.7
STL00383	Residual Range Organics (RRO) (C25-C36)	430		28	5.7

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	101		50-150
93952-07-9	n-Triacontane-d62	118		50-150

*me 8/14/19*

FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Spokane Job No.: 590-11386-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070114 Lab Sample ID: 590-11386-3  
 Matrix: Solid Lab File ID: 590-0005722-008.D  
 Analysis Method: NWTPH-Dx Date Collected: 07/11/2019 15:08  
 Extraction Method: 3550C Date Extracted: 07/15/2019 12:26  
 Sample wt/vol: 15.94(g) Date Analyzed: 07/15/2019 17:21  
 Con. Extract Vol.: 5(mL) Dilution Factor: 1  
 Injection Volume: 2(uL) GC Column: ZB-1HT B ID: 0.25 (mm)  
 % Moisture: 11.8 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 23015 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00258	Diesel Range Organics (DRO) (C10-C25)	51	JK	11	4.5
STL00383	Residual Range Organics (RRO) (C25-C36)	270		27	5.3

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	96		50-150
93952-07-9	n-Triacontane-d62	120		50-150

FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Spokane Job No.: 590-11386-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070115 Lab Sample ID: 590-11386-4  
 Matrix: Solid Lab File ID: 590-0005722-010.D  
 Analysis Method: NWTPH-Dx Date Collected: 07/11/2019 15:15  
 Extraction Method: 3550C Date Extracted: 07/15/2019 12:26  
 Sample wt/vol: 15.20(g) Date Analyzed: 07/15/2019 18:00  
 Con. Extract Vol.: 5(mL) Dilution Factor: 1  
 Injection Volume: 2(uL) GC Column: ZB-1HT B ID: 0.25 (mm)  
 % Moisture: 12.1 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 23015 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00258	Diesel Range Organics (DRO) (C10-C25)	210		11	4.7
STL00383	Residual Range Organics (RRO) (C25-C36)	530		28	5.6

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	100		50-150
93952-07-9	n-Triacontane-d62	112		50-150

*MW 8-14-19*



FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Spokane Job No.: 590-11386-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070116 Lab Sample ID: 590-11386-5  
 Matrix: Solid Lab File ID: 590-0005722-011.D  
 Analysis Method: NWTPH-Dx Date Collected: 07/11/2019 15:20  
 Extraction Method: 3550C Date Extracted: 07/15/2019 12:26  
 Sample wt/vol: 15.07(g) Date Analyzed: 07/15/2019 18:20  
 Con. Extract Vol.: 5(mL) Dilution Factor: 1  
 Injection Volume: 2(uL) GC Column: ZB-1HT B ID: 0.25 (mm)  
 % Moisture: 12.1 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 23015 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00258	Diesel Range Organics (DRO) (C10-C25)	110	JA	11	4.7
STL00383	Residual Range Organics (RRO) (C25-C36)	570		28	5.7

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	85		50-150
93952-07-9	n-Triacontane-d62	110		50-150

FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>Eurofins TestAmerica, Spokane</u>	Job No.: <u>590-11386-1</u>
SDG No.: _____	
Client Sample ID: <u>19070117</u>	Lab Sample ID: <u>590-11386-6</u>
Matrix: <u>Solid</u>	Lab File ID: <u>590-0005722-012.D</u>
Analysis Method: <u>NWTPH-Dx</u>	Date Collected: <u>07/11/2019 13:39</u>
Extraction Method: <u>3550C</u>	Date Extracted: <u>07/15/2019 12:26</u>
Sample wt/vol: <u>15.21(g)</u>	Date Analyzed: <u>07/15/2019 18:39</u>
Con. Extract Vol.: <u>5(mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2(uL)</u>	GC Column: <u>ZB-1HT B</u> ID: <u>0.25 (mm)</u>
% Moisture: <u>19.5</u>	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>23015</u>	Units: <u>mg/Kg</u>

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00258	Diesel Range Organics (DRO) (C10-C25)	<del>ND</del>		12	5.1
STL00383	Residual Range Organics (RRO) (C25-C36)	19	J	31	6.1

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	91		50-150
93952-07-9	n-Triacontane-d62	96		50-150

*MW 8/14/19*

FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Spokane Job No.: 590-11386-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070118 Lab Sample ID: 590-11386-7  
 Matrix: Solid Lab File ID: 590-0005722-014.D  
 Analysis Method: NWTPH-Dx Date Collected: 07/11/2019 14:00  
 Extraction Method: 3550C Date Extracted: 07/15/2019 12:26  
 Sample wt/vol: 15.09(g) Date Analyzed: 07/15/2019 19:19  
 Con. Extract Vol.: 5(mL) Dilution Factor: 1  
 Injection Volume: 2(uL) GC Column: ZB-1HT B ID: 0.25(mm)  
 % Moisture: 25.2 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 23015 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00258	Diesel Range Organics (DRO) (C10-C25)	ND		13	5.6
STL00383	Residual Range Organics (RRO) (C25-C36)	9.0	J Q	33	6.6

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	88		50-150
93952-07-9	n-Triacontane-d62	93		50-150

*MW8440*

FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Spokane Job No.: 590-11386-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070119 Lab Sample ID: 590-11386-8  
 Matrix: Solid Lab File ID: 590-0005722-015.D  
 Analysis Method: NWTPH-Dx Date Collected: 07/11/2019 14:05  
 Extraction Method: 3550C Date Extracted: 07/15/2019 12:26  
 Sample wt/vol: 15.38(g) Date Analyzed: 07/15/2019 19:39  
 Con. Extract Vol.: 5(mL) Dilution Factor: 1  
 Injection Volume: 2(uL) GC Column: ZB-1HT B ID: 0.25 (mm)  
 % Moisture: 15.9 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 23015 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00258	Diesel Range Organics (DRO) (C10-C25)	8.4	JQ	12	4.9
STL00383	Residual Range Organics (RRO) (C25-C36)	45		29	5.8

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	81		50-150
93952-07-9	n-Triacontane-d62	89		50-150

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FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Spokane Job No.: 590-11386-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070120 Lab Sample ID: 590-11386-9  
 Matrix: Solid Lab File ID: 590-0005722-016.D  
 Analysis Method: NWTPH-Dx Date Collected: 07/11/2019 14:11  
 Extraction Method: 3550C Date Extracted: 07/15/2019 12:26  
 Sample wt/vol: 15.31(g) Date Analyzed: 07/15/2019 19:59  
 Con. Extract Vol.: 5(mL) Dilution Factor: 1  
 Injection Volume: 2(uL) GC Column: ZB-1HT B ID: 0.25 (mm)  
 % Moisture: 17.3 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 23015 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00258	Diesel Range Organics (DRO) (C10-C25)	14		12	5.0
STL00383	Residual Range Organics (RRO) (C25-C36)	37		30	5.9

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	86		50-150
93952-07-9	n-Triacontane-d62	92		50-150

*MW 84419*

FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>Eurofins TestAmerica, Spokane</u>	Job No.: <u>590-11386-1</u>
SDG No.: _____	
Client Sample ID: <u>19070121</u>	Lab Sample ID: <u>590-11386-10</u>
Matrix: <u>Solid</u>	Lab File ID: <u>590-0005722-017.D</u>
Analysis Method: <u>NWTPH-Dx</u>	Date Collected: <u>07/11/2019 14:19</u>
Extraction Method: <u>3550C</u>	Date Extracted: <u>07/15/2019 12:26</u>
Sample wt/vol: <u>15.29(g)</u>	Date Analyzed: <u>07/15/2019 20:19</u>
Con. Extract Vol.: <u>5(mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2(uL)</u>	GC Column: <u>ZB-1HT B</u> ID: <u>0.25 (mm)</u>
% Moisture: <u>14.4</u>	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>23015</u>	Units: <u>mg/Kg</u>

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00258	Diesel Range Organics (DRO) (C10-C25)	16		11	4.8
STL00383	Residual Range Organics (RRO) (C25-C36)	56		29	5.7

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	82		50-150
93952-07-9	n-Triacontane-d62	88		50-150

*Mw 844-19*



FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Spokane Job No.: 590-11386-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070122 Lab Sample ID: 590-11386-11  
 Matrix: Solid Lab File ID: 590-0005722-018.D  
 Analysis Method: NWTPH-Dx Date Collected: 07/11/2019 14:25  
 Extraction Method: 3550C Date Extracted: 07/15/2019 12:26  
 Sample wt/vol: 15.05(g) Date Analyzed: 07/15/2019 20:39  
 Con. Extract Vol.: 5(mL) Dilution Factor: 1  
 Injection Volume: 2(uL) GC Column: ZB-1HT B ID: 0.25 (mm)  
 % Moisture: 17.0 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 23015 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00258	Diesel Range Organics (DRO) (C10-C25)	9.7	J <i>Q</i>	12	5.0
STL00383	Residual Range Organics (RRO) (C25-C36)	20	J <i>Q</i>	30	6.0

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	81		50-150
93952-07-9	n-Triacontane-d62	87		50-150

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FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>Eurofins TestAmerica, Spokane</u>	Job No.: <u>590-11386-1</u>
SDG No.: _____	
Client Sample ID: <u>19070123</u>	Lab Sample ID: <u>590-11386-12</u>
Matrix: <u>Solid</u>	Lab File ID: <u>590-0005722-019.D</u>
Analysis Method: <u>NWTPH-Dx</u>	Date Collected: <u>07/11/2019 14:29</u>
Extraction Method: <u>3550C</u>	Date Extracted: <u>07/15/2019 12:26</u>
Sample wt/vol: <u>15.95(g)</u>	Date Analyzed: <u>07/15/2019 20:58</u>
Con. Extract Vol.: <u>5(mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2(uL)</u>	GC Column: <u>ZB-1HT B</u> ID: <u>0.25 (mm)</u>
% Moisture: <u>18.1</u>	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>23015</u>	Units: <u>mg/Kg</u>

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00258	Diesel Range Organics (DRO) (C10-C25)	24		11	4.8
STL00383	Residual Range Organics (RRO) (C25-C36)	52		29	5.7

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	92		50-150
93952-07-9	n-Triacontane-d62	101		50-150

*Mw 8/1/19*

FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>Eurofins TestAmerica, Spokane</u>	Job No.: <u>590-11386-1</u>
SDG No.: _____	
Client Sample ID: <u>19070124</u>	Lab Sample ID: <u>590-11386-13</u>
Matrix: <u>Solid</u>	Lab File ID: <u>590-0005722-020.D</u>
Analysis Method: <u>NWTPH-Dx</u>	Date Collected: <u>07/11/2019 14:35</u>
Extraction Method: <u>3550C</u>	Date Extracted: <u>07/15/2019 12:26</u>
Sample wt/vol: <u>15.27(g)</u>	Date Analyzed: <u>07/15/2019 21:18</u>
Con. Extract Vol.: <u>5(mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2(uL)</u>	GC Column: <u>ZB-1HT B</u> ID: <u>0.25 (mm)</u>
% Moisture: <u>11.3</u>	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>23015</u>	Units: <u>mg/Kg</u>

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STI00258	Diesel Range Organics (DRO) (C10-C25)	71		11	4.6
STI00383	Residual Range Organics (RRO) (C25-C36)	330		28	5.5

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	88		50-150
93952-07-9	n-Triacontane-d62	99		50-150

*mw 8/19*



## ecology and environment, inc.

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### MEMORANDUM

DATE: August 14, 2019

TO: Seth Wing, START-IV Project Manager, E & E, Seattle, WA

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington 

SUBJ: **Inorganic Data Quality Assurance Review, May Creek Removal Action Site, Renton, Washington**

REF: TO: TO-68HE0718F0470 PAN: 1004530.0470.001.01

The data quality assurance review of 13 soil samples collected from the May Creek Removal Action site in Renton, Washington, has been completed. Cadmium and lead analyses (EPA Method 6010C) were performed by Test America, Inc., Spokane, Washington. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Manual Process (S2B/4VM).

The samples were numbered:

19070112	19070113	19070114	19070115	19070116	19070117
19070118	19070119	19070120	19070121	19070122	19070123
19070124					

#### Data Qualifications:

##### 1. Sample Holding Times: Acceptable.

The samples were maintained at  $< 6^{\circ}\text{C}$ . The samples were collected on July 11, 2019, and were analyzed by July 12, 2019, therefore meeting QC criteria of less than 6 months between collection, extraction, and analysis (28 days for mercury).

##### 2. Initial and Continuing Calibration: Acceptable.

A minimum of one calibration standard and a blank were analyzed at the beginning of the ICP analysis sequence and after every 10 samples. No results were greater than 110% of the highest calibration standard. All ICP recoveries were within the QC limits.

##### 3. Blanks: Acceptable.

A preparation blank was analyzed for each 20 samples or per matrix per concentration level. Blanks were analyzed after each Initial or Continuing Calibration Verification. There were no detections in any blanks that potentially affected sample results.

##### 4. ICP Interference Check Sample: Acceptable.

An Interference Check Sample (ICS) was analyzed at the beginning of each sequence or at least twice every 8 hours, whichever was more frequent. All applicable ICS (solution AB) results were within QC limits of 80% - 120% recovery.

**5. Matrix Spike Analysis: Satisfactory.**

A matrix spike analysis was performed per SDG or per matrix per concentration level, whichever was more frequent. Spike recoveries were within the QC limits except lead with low recoveries; positive results and sample quantitation limits associated with low recoveries were qualified as estimated quantities with a low bias (JL or UJL).

**6. Duplicate Analysis: Satisfactory.**

A laboratory spike duplicate analysis was performed per SDG or per matrix per concentration level, whichever was more frequent. All duplicate results were within QC limits except lead; associated sample results were qualified as estimated quantities with an unknown bias (JK or UJK).

**8. Laboratory Control Sample Analysis: Acceptable.**

A Laboratory Control Sample (LCS) was analyzed per SDG per matrix. All LCS results were within the established control limits.

**9. Overall Assessment of Data for Use**

A total of 26 results were validated in this data memorandum. No sample results were qualified as estimated quantities (J) based on holding time outliers, incorrect sample containers, sample temperature outliers, or serial dilution outliers. No sample results were rejected (R). A total of 13 sample results were qualified as estimated quantities (J) based on spike accuracy and duplicate precision outliers. The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the analytical method(s), the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, and/or the Office of Emergency and Remedial Response Publication "National Functional Guidelines for Superfund Inorganic Methods Data Review, January 2017". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

H - The sample result is biased high.

J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

K - The bias of the sample is not known.

L - The sample result is biased low.

Q - Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.

R - The data is rejected and unusable. The analyte may or may not be present in the sample.

U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.

UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.

1A-IN  
INORGANIC ANALYSIS DATA SHEET  
METALS

Client Sample ID: 19070112

Lab Sample ID: 590-11386-1

Lab Name: Eurofins TestAmerica, Spokane

Job No.: 590-11386-1

SDG ID.:

Matrix: Solid

Date Sampled: 07/11/2019 14:55

Reporting Basis: DRY

Date Received: 07/12/2019 10:43

% Solids: 87.8

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-43-9	Cadmium	ND	0.93	0.055	mg/Kg			1	6010C
7439-92-1	Lead	24	2.8	1.4	mg/Kg		F1	1	6010C



1A-IN  
INORGANIC ANALYSIS DATA SHEET  
METALS

Client Sample ID: 19070113

Lab Sample ID: 590-11386-2

Lab Name: Eurofins TestAmerica, Spokane

Job No.: 590-11386-1

SDG ID.:

Matrix: Solid

Date Sampled: 07/11/2019 15:02

Reporting Basis: DRY

Date Received: 07/12/2019 10:43

% Solids: 88.0

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-43-9	Cadmium	ND	0.82	0.048	mg/Kg			1	6010C
7439-92-1	Lead	28	2.5	1.2	mg/Kg			1	6010C

1A-IN  
INORGANIC ANALYSIS DATA SHEET  
METALS

Client Sample ID: 19070114

Lab Sample ID: 590-11386-3

Lab Name: Eurofins TestAmerica, Spokane

Job No.: 590-11386-1

SDG ID.:

Matrix: Solid

Date Sampled: 07/11/2019 15:08

Reporting Basis: DRY

Date Received: 07/12/2019 10:43

% Solids: 88.2

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-43-9	Cadmium	ND	0.85	0.050	mg/Kg			1	6010C
7439-92-1	Lead	18	2.6	1.3	mg/Kg			1	6010C

1A-IN  
INORGANIC ANALYSIS DATA SHEET  
METALS

Client Sample ID: 19070115

Lab Sample ID: 590-11386-4

Lab Name: Eurofins TestAmerica, Spokane

Job No.: 590-11386-1

SDG ID.:

Matrix: Solid

Date Sampled: 07/11/2019 15:15

Reporting Basis: DRY

Date Received: 07/12/2019 10:43

% Solids: 87.9

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-43-9	Cadmium	ND	0.93	0.055	mg/Kg			1	6010C
7439-92-1	Lead	25	2.8	1.4	mg/Kg			1	6010C

*Mr 8/2-19*

1A-IN  
INORGANIC ANALYSIS DATA SHEET  
METALS

Client Sample ID: 19070116

Lab Sample ID: 590-11386-5

Lab Name: Eurofins TestAmerica, Spokane

Job No.: 590-11386-1

SDG ID.:

Matrix: Solid

Date Sampled: 07/11/2019 15:20

Reporting Basis: DRY

Date Received: 07/12/2019 10:43

% Solids: 87.9

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-43-9	Cadmium	ND	0.93	0.055	mg/Kg			1	6010C
7439-92-1	Lead	51	2.8	1.4	mg/Kg			1	6010C

MW 8-17-19

07/17/2019

1A-IN  
INORGANIC ANALYSIS DATA SHEET  
METALS

Client Sample ID: 19070117

Lab Sample ID: 590-11386-6

Lab Name: Eurofins TestAmerica, Spokane

Job No.: 590-11386-1

SDG ID.:

Matrix: Solid

Date Sampled: 07/11/2019 13:39

Reporting Basis: DRY

Date Received: 07/12/2019 10:43

% Solids: 80.5

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-43-9	Cadmium	0.93	0.055	mg/Kg				1	6010C
7439-92-1	Lead	6.4	2.8	1.4	mg/Kg			1	6010C

7/17/19

1A-IN  
INORGANIC ANALYSIS DATA SHEET  
METALS

Client Sample ID: 19070118

Lab Sample ID: 590-11386-7

Lab Name: Eurofins TestAmerica, Spokane

Job No.: 590-11386-1

SDG ID.:

Matrix: Solid

Date Sampled: 07/11/2019 14:00

Reporting Basis: DRY

Date Received: 07/12/2019 10:43

% Solids: 74.8

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-43-9	Cadmium	0.89	0.89	0.053	mg/Kg			1	6010C
7439-92-1	Lead	3.9	2.7	1.3	mg/Kg			1	6010C

*mw 8/2-19*



1A-IN  
INORGANIC ANALYSIS DATA SHEET  
METALS

Client Sample ID: 19070119

Lab Sample ID: 590-11386-8

Lab Name: Eurofins TestAmerica, Spokane

Job No.: 590-11386-1

SDG ID.:

Matrix: Solid

Date Sampled: 07/11/2019 14:05

Reporting Basis: DRY

Date Received: 07/12/2019 10:43

% Solids: 84.1

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-43-9	Cadmium	0.28	0.99	0.058	mg/Kg	J		1	6010C
7439-92-1	Lead	47	JK 3.0	1.5	mg/Kg			1	6010C

1A-IN  
INORGANIC ANALYSIS DATA SHEET  
METALS

Client Sample ID: 19070120

Lab Sample ID: 590-11386-9

Lab Name: Eurofins TestAmerica, Spokane

Job No.: 590-11386-1

SDG ID.:

Matrix: Solid

Date Sampled: 07/11/2019 14:11

Reporting Basis: DRY

Date Received: 07/12/2019 10:43

% Solids: 82.7

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-43-9	Cadmium	0.40	0.93	0.055	mg/Kg	J		1	6010C
7439-92-1	Lead	12	2.8	1.4	mg/Kg			1	6010C

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1A-IN  
INORGANIC ANALYSIS DATA SHEET  
METALS

Client Sample ID: 19070121

Lab Sample ID: 590-11386-10

Lab Name: Eurofins TestAmerica, Spokane

Job No.: 590-11386-1

SDG ID.:

Matrix: Solid

Date Sampled: 07/11/2019 14:19

Reporting Basis: DRY

Date Received: 07/12/2019 10:43

% Solids: 85.6

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-43-9	Cadmium	ND	0.93	0.055	mg/Kg			1	6010C
7439-92-1	Lead	5.8	2.8	1.4	mg/Kg			1	6010C

1A-IN  
INORGANIC ANALYSIS DATA SHEET  
METALS

Client Sample ID: 19070122

Lab Sample ID: 590-11386-11

Lab Name: Eurofins TestAmerica, Spokane

Job No.: 590-11386-1

SDG ID.:

Matrix: Solid

Date Sampled: 07/11/2019 14:25

Reporting Basis: DRY

Date Received: 07/12/2019 10:43

% Solids: 83.0

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-43-9	Cadmium	<del>ND</del> 0.93	0.93	0.055	mg/Kg			1	6010C
7439-92-1	Lead	5.5	2.8	1.4	mg/Kg			1	6010C

*MW 8-12-19*

1A-IN  
INORGANIC ANALYSIS DATA SHEET  
METALS

Client Sample ID: 19070123

Lab Sample ID: 590-11386-12

Lab Name: Eurofins TestAmerica, Spokane

Job No.: 590-11386-1

SDG ID.:

Matrix: Solid

Date Sampled: 07/11/2019 14:29

Reporting Basis: DRY

Date Received: 07/12/2019 10:43

% Solids: 81.9

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-43-9	Cadmium	ND	0.94	0.055	mg/Kg			1	6010C
7439-92-1	Lead	12	2.8	1.4	mg/Kg			1	6010C

*mu 8/2/19*

1A-IN  
INORGANIC ANALYSIS DATA SHEET  
METALS

Client Sample ID: 19070124

Lab Sample ID: 590-11386-13

Lab Name: Eurofins TestAmerica, Spokane

Job No.: 590-11386-1

SDG ID.:

Matrix: Solid

Date Sampled: 07/11/2019 14:35

Reporting Basis: DRY

Date Received: 07/12/2019 10:43

% Solids: 88.7

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-43-9	Cadmium	0.24	0.86	0.051	mg/Kg	J		1	6010C
7439-92-1	Lead	47	2.6	1.3	mg/Kg			1	6010C

*mw 8-12-19*





## ecology and environment, inc.


Global Environmental Specialists

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### MEMORANDUM

DATE: January 7, 2019

TO: Steve Hall, START-IV Project Manager, E & E, Seattle, Washington

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington 

SUBJ: **Organic Data Quality Assurance Review, May Creek Removal Action Site, Renton, Washington**

REF: TO: TO-68HE0718F0470 PAN: 1004530.0470.001.01

The data quality assurance review of 2 soil samples collected from the May Creek Removal Action site in Renton, Washington, has been completed. Volatile Organic Compound (VOC) analysis (EPA Method 8260) was performed by Test America, Inc., Tacoma, Washington. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Manual Process (S2B/4VM).

The samples were numbered: 18111101 18111103

#### Data Qualifications:

##### **1. Sample Holding Times: Acceptable.**

The samples were received at 7.9°C, above the QC limits of 4°C ± 2°C. The samples were maintained on ice after sample collection until receipt at the laboratory as much as possible. The samples were hand-delivered to the laboratory (located approximately 25 miles from the packaging location) immediately after packaging, so it's likely that the ice in the cooler did not have enough time to fully cool the samples. No actions were taken based on this information. The samples were collected on November 19, 2018, were received at the laboratory on November 20, 2018, and were analyzed by November 28, 2018, therefore meeting QC criteria of less than 14 days between collection and analysis for soil samples.

##### **2. Tuning: Satisfactory.**

Tuning was performed at the beginning of each 12-hour analysis sequence. All results were within QC limits except one slightly low outlier associated with the initial calibration; no actions were taken based on this one outlier.

##### **3. Initial Calibration: Satisfactory.**

All average Relative Response Factors (RRFs) were within the QC limits except low dichloro-difluoromethane, vinyl chloride, trichloroethene, and bromodichloromethane results; associated sample quantitation limits were rejected (R) and associated positive results were qualified as estimated quantities with a high bias (JH). All Relative Standard Deviations (RSDs) and/or correlation coefficients were within the QC limits.

##### **4. Continuing Calibration: Satisfactory.**

All RRFs were within the QC limits except for the continuing calibration verification (CCV) analyzed in batch 580-289687 was outside criteria for the following analyte(s): benzene, vinyl chloride,

and trichloroethene: associated sample quantitation limits were rejected (R) and associated positive results were qualified as estimated quantities with a high bias (JH).

All % differences were within the QC limits except the continuing calibration verification (CCV) associated with batch 580-289687 recovered outside acceptance criteria, low biased, for 1,2,3-trichlorobenzene and naphthalene (associated positive results and sample quantitation limits were qualified as estimated quantities with a low bias (JL or UJL), high biased results for bromobenzene and dichlorodifluoromethane (associated positive results were qualified as estimated quantities with a high bias [JH]), and a high biased result for trichlorofluoromethane in the reanalysis of sample 18111101 (associated positive results were qualified as estimated quantities with a high bias [JH]).

**5. Blanks: Satisfactory.**

A method blank was analyzed for each 20 sample batch per matrix. There were no detections in any method blank. A trip blank sample was not provided; no actions were taken based on this as only one analyte was detected.

**6. System Monitoring Compounds (SMCs): Acceptable.**

All SMC recoveries were within QC limits.

**7. Blank Spike (BS)/BS Duplicate (BSD) Analysis: Satisfactory.**

BS and BSD analyses were performed per SDG or per matrix per concentration level, whichever was more frequent. All recoveries were within QC limits except dichlorodifluoromethane, trichlorofluoromethane and vinyl chloride failed the recovery criteria high (associated positive sample results were qualified as estimated quantities with a high bias [JH]) and 1,2,3-trichlorobenzene failed the recovery criteria low (associated positive sample results and sample quantitation limits were qualified as estimated quantities with a low bias [JL or UJL]).

**8. Matrix Spike (MS)/MS Duplicate (MSD) Analysis: Satisfactory.**

MS and MSD analyses were performed per SDG or per matrix per concentration level, whichever was more frequent. Many recoveries were outside QC limits. According to the laboratory, matrix interference and/or non-homogeneity are suspected because generally the associated BS/BSD precision was within acceptance limits; no actions were taken based on the MS/MSD outliers alone.

**9. Duplicate Analysis: Satisfactory.**

Duplicate and spike duplicate analyses were performed per SDG or per matrix per concentration level, whichever was more frequent. Most matrix spike duplicate results were outside the QC limits; no actions were taken based on these outliers alone (see Section 8).

**10. Internal Standards: Acceptable.**

All internal standards were within  $\pm 30$  seconds of the continuing calibration internal standard retention times. All area counts were within 50 % to 200 % of the continuing calibration area counts.

**11. Performance Evaluation Sample Analysis: Not Provided.**

Performance evaluation samples were not provided to the laboratory.

**12. Overall Assessment of Data for Use**

VOCs were reported on an "as received basis" per request.

A total of 120 results were validated in this data memorandum. A total of two sample results were qualified as estimated quantities (J) based on spike accuracy outliers. No sample results were qualified as estimated quantities (J) based on duplicate precision outliers, holding time outliers, incorrect sample containers, or sample temperature outliers. No sample results were rejected (R).

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the analytical method(s), the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, and/or the Office of Emergency and Remedial Response Publication "National Functional Guidelines for Superfund Organic Methods Data Review, January 2017". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

#### Data Qualifiers and Definitions

- H - The sample result is biased high.
- J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
- K - The bias of the sample is not known.
- L - The sample result is biased low.
- N - The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification".
- NJ - The analyte has been "tentatively identified" or "presumptively" as present and the associated numerical value is the estimated concentration in the sample.
- Q - Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.
- R - The data is rejected and unusable. The analyte may or may not be present in the sample.
- U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82002-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111101 Lab Sample ID: 580-82002-1  
 Matrix: Solid Lab File ID: K2618020.D  
 Analysis Method: 8260C Date Collected: 11/19/2018 14:45  
 Sample wt/vol: 9.79(g) Date Analyzed: 11/27/2018 01:02  
 Soil Aliquot Vol: 1.075 (mL) Dilution Factor: 1  
 Soil Extract Vol.: 10(mL) GC Column: DB-VRX ID: 0.25 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Medium  
 Analysis Batch No.: 289687 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
630-20-6	1,1,1,2-Tetrachloroethane	ND	F2 F1	41	11
71-55-6	1,1,1-Trichloroethane	ND	F2 F1	41	9.8
79-34-5	1,1,2,2-Tetrachloroethane	ND	F2 F1	20	7.8
79-00-5	1,1,2-Trichloroethane	ND	F2 F1	20	7.6
75-34-3	1,1-Dichloroethane	ND	F2 F1	41	4.3
75-35-4	1,1-Dichloroethene	ND	F2 F1	41	13
563-58-6	1,1-Dichloropropene	ND	F2 F1	41	5.4
87-61-6	1,2,3-Trichlorobenzene	ND	F2 F1	150	33
96-18-4	1,2,3-Trichloropropane	ND	F2 F1	41	12
120-82-1	1,2,4-Trichlorobenzene	ND	F2 F1	61	16
95-63-6	1,2,4-Trimethylbenzene	ND	F2 F1	41	14
96-12-8	1,2-Dibromo-3-Chloropropane	ND	F2 F1	260	41
106-93-4	1,2-Dibromoethane	ND	F2 F1	20	3.9
95-50-1	1,2-Dichlorobenzene	ND	F2 F1	41	8.9
107-06-2	1,2-Dichloroethane	ND	F2 F1	20	5.6
78-87-5	1,2-Dichloropropane	ND	F2 F1	20	6.7
108-67-8	1,3,5-Trimethylbenzene	ND	F2 F1	41	7.8
541-73-1	1,3-Dichlorobenzene	ND	F2 F1	61	14
142-28-9	1,3-Dichloropropane	ND	F2 F1	61	14
106-46-7	1,4-Dichlorobenzene	ND	F2 F1	61	11
594-20-7	2,2-Dichloropropane	ND	F2 F1	41	12
95-49-8	2-Chlorotoluene	ND	F2 F1	41	9.0
106-43-4	4-Chlorotoluene	ND	F2 F1	41	10
99-87-6	4-Isopropyltoluene	ND	F2 F1	41	10
71-43-2	Benzene	ND	F2 F1	31	7.8
108-86-1	Bromobenzene	ND	F2 F1	100	17
74-97-5	Bromochloromethane	ND	F2 F1	41	6.3
75-27-4	Bromodichloromethane	ND	F2 F1	61	14
75-25-2	Bromoform	ND	F2 F1	200	27
74-83-9	Bromomethane	ND	F2 F1	200	14
56-23-5	Carbon tetrachloride	ND	F2 F1	20	3.9
108-90-7	Chlorobenzene	ND	F2 F1	41	10
75-00-3	Chloroethane	ND	F2 F1	410	55
67-66-3	Chloroform	ND	F2 F1	41	4.3
74-87-3	Chloromethane	ND	F2 F1	100	10

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82002-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111101 Lab Sample ID: 580-82002-1  
 Matrix: Solid Lab File ID: K2618020.D  
 Analysis Method: 8260C Date Collected: 11/19/2018 14:45  
 Sample wt/vol: 9.79(g) Date Analyzed: 11/27/2018 01:02  
 Soil Aliquot Vol: 1.075 (mL) Dilution Factor: 1  
 Soil Extract Vol.: 10(mL) GC Column: DB-VRX ID: 0.25(mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Medium  
 Analysis Batch No.: 289687 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
156-59-2	cis-1,2-Dichloroethene	ND	F2 F1	61	13
10061-01-5	cis-1,3-Dichloropropene	ND	F2 F1	20	4.1
124-48-1	Dibromochloromethane	ND	F2 F1	41	12
74-95-3	Dibromomethane	ND	F2 F1	61	7.6
75-71-8	Dichlorodifluoromethane	ND	* F2	200	47
100-41-4	Ethylbenzene	ND	F2 F1	41	9.3
87-68-3	Hexachlorobutadiene	ND	F2 F1	150	34
98-82-8	Isopropylbenzene	ND	F2 F1	41	8.8
1634-04-4	Methyl tert-butyl ether	ND	F2 F1	41	6.1
75-09-2	Methylene Chloride	ND	F2 F1	260	66
179601-23-1	m-Xylene & p-Xylene	ND	F2 F1	200	15
91-20-3	Naphthalene	ND	F2 F1	100	29
104-51-8	n-Butylbenzene	ND	F2 F1	150	26
103-65-1	N-Propylbenzene	ND	F2 F1	41	7.0
95-47-6	o-Xylene	ND	F2 F1	61	14
135-98-8	sec-Butylbenzene	ND	F2 F1	41	8.8
100-42-5	Styrene	ND	F2 F1	41	6.2
98-06-6	t-Butylbenzene	ND	F2 F1	41	7.9
127-18-4	Tetrachloroethene	ND	F2 F1	41	5.4
108-88-3	Toluene	ND	F2 F1	150	14
156-60-5	trans-1,2-Dichloroethene	ND	F2 F1	61	15
10061-02-6	trans-1,3-Dichloropropene	ND	F2 F1	41	7.2
79-01-6	Trichloroethene	ND	F2 F1	61	23
75-01-4	Vinyl chloride	ND	*	150	27

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	99		80-121
460-00-4	4-Bromofluorobenzene (Surr)	100		80-120
1868-53-7	Dibromofluoromethane (Surr)	99		80-120
2037-26-5	Toluene-d8 (Surr)	108		80-120
98-08-8	Trifluorotoluene (Surr)	103		80-120

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82002-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111101 RA Lab Sample ID: 580-82002-1 RA  
 Matrix: Solid Lab File ID: 112818015.D  
 Analysis Method: 8260C Date Collected: 11/19/2018 14:45  
 Sample wt/vol: 9.79(g) Date Analyzed: 11/28/2018 15:38  
 Soil Aliquot Vol: 1.075 (mL) Dilution Factor: 1  
 Soil Extract Vol.: 10(mL) GC Column: DB-VRX ID: 0.25 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Medium  
 Analysis Batch No.: 289813 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-69-4	Trichlorofluoromethane	15	J E2 EX me	200	12

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	93		80-121
460-00-4	4-Bromofluorobenzene (Surr)	100		80-120
1868-53-7	Dibromofluoromethane (Surr)	96		80-120
2037-26-5	Toluene-d8 (Surr)	104		80-120
98-08-8	Trifluorotoluene (Surr)	98		80-120

*mw 1749*



FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle

Job No.: 580-82002-1

SDG No.: \_\_\_\_\_

Client Sample ID: 18111103

Lab Sample ID: 580-82002-2

Matrix: Solid

Lab File ID: K2618023.D

Analysis Method: 8260C

Date Collected: 11/19/2018 14:55

Sample wt/vol: 10.78 (g)

Date Analyzed: 11/27/2018 02:19

Soil Aliquot Vol: 1.075 (mL)

Dilution Factor: 1

Soil Extract Vol.: 10 (mL)

GC Column: DB-VRX ID: 0.25 (mm)

% Moisture: \_\_\_\_\_

Level: (low/med) Medium

Analysis Batch No.: 289687

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
630-20-6	1,1,1,2-Tetrachloroethane	ND		37	9.8
71-55-6	1,1,1-Trichloroethane	ND		37	8.9
79-34-5	1,1,2,2-Tetrachloroethane	ND		19	7.1
79-00-5	1,1,2-Trichloroethane	ND		19	6.9
75-34-3	1,1-Dichloroethane	ND		37	3.9
75-35-4	1,1-Dichloroethene	ND		37	11
563-58-6	1,1-Dichloropropene	ND		37	4.9
87-61-6	1,2,3-Trichlorobenzene	ND	Low	140	30
96-18-4	1,2,3-Trichloropropane	ND		37	11
120-82-1	1,2,4-Trichlorobenzene	ND		56	14
95-63-6	1,2,4-Trimethylbenzene	ND		37	13
96-12-8	1,2-Dibromo-3-Chloropropane	ND		230	37
106-93-4	1,2-Dibromoethane	ND		19	3.5
95-50-1	1,2-Dichlorobenzene	ND		37	8.1
107-06-2	1,2-Dichloroethane	ND		19	5.1
78-87-5	1,2-Dichloropropane	ND		19	6.1
108-67-8	1,3,5-Trimethylbenzene	ND		37	7.1
541-73-1	1,3-Dichlorobenzene	ND		56	12
142-28-9	1,3-Dichloropropane	ND		56	13
106-46-7	1,4-Dichlorobenzene	ND		56	10
594-20-7	2,2-Dichloropropane	ND		37	11
95-49-8	2-Chlorotoluene	ND		37	8.2
106-43-4	4-Chlorotoluene	ND		37	9.1
99-87-6	4-Isopropyltoluene	ND		37	9.5
71-43-2	Benzene	ND		28	7.1
108-86-1	Bromobenzene	ND		93	16
74-97-5	Bromochloromethane	ND		37	5.8
75-27-4	Bromodichloromethane	ND		56	12
75-25-2	Bromoform	ND		190	24
74-83-9	Bromomethane	ND		190	12
56-23-5	Carbon tetrachloride	ND		19	3.5
108-90-7	Chlorobenzene	ND		37	9.1
75-00-3	Chloroethane	ND		370	50
67-66-3	Chloroform	ND		37	3.9
74-87-3	Chloromethane	ND		93	9.4
156-59-2	cis-1,2-Dichloroethene	ND		56	12

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82002-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111103 Lab Sample ID: 580-82002-2  
 Matrix: Solid Lab File ID: K2618023.D  
 Analysis Method: 8260C Date Collected: 11/19/2018 14:55  
 Sample wt/vol: 10.78(g) Date Analyzed: 11/27/2018 02:19  
 Soil Aliquot Vol: 1.075 (mL) Dilution Factor: 1  
 Soil Extract Vol.: 10(mL) GC Column: DB-VRX ID: 0.25(mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Medium  
 Analysis Batch No.: 289687 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
10061-01-5	cis-1,3-Dichloropropene	ND		19	3.7
124-48-1	Dibromochloromethane	ND		37	10
74-95-3	Dibromomethane	ND		56	6.9
75-71-8	Dichlorodifluoromethane	ND		190	43
100-41-4	Ethylbenzene	ND		37	8.4
87-68-3	Hexachlorobutadiene	ND		140	31
98-82-8	Isopropylbenzene	ND		37	8.0
1634-04-4	Methyl tert-butyl ether	ND		37	5.6
75-09-2	Methylene Chloride	ND		230	60
179601-23-1	m-Xylene & p-Xylene	ND		190	14
91-20-3	Naphthalene	ND		93	26
104-51-8	n-Butylbenzene	ND		140	23
103-65-1	N-Propylbenzene	ND		37	6.4
95-47-6	o-Xylene	ND		56	12
135-98-8	sec-Butylbenzene	ND		37	8.0
100-42-5	Styrene	ND		37	5.7
98-06-6	t-Butylbenzene	ND		37	7.1
127-18-4	Tetrachloroethene	ND		37	4.9
108-88-3	Toluene	ND		140	13
156-60-5	trans-1,2-Dichloroethene	ND		56	14
10061-02-6	trans-1,3-Dichloropropene	ND		37	6.5
79-01-6	Trichloroethene	ND		56	21
75-69-4	Trichlorofluoromethane	ND		190	11
75-01-4	Vinyl chloride	ND		140	24

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	100		80-121
460-00-4	4-Bromofluorobenzene (Surr)	99		80-120
1868-53-7	Dibromofluoromethane (Surr)	98		80-120
2037-26-5	Toluene-d8 (Surr)	107		80-120
98-08-8	Trifluorotoluene (Surr)	102		80-120



## ecology and environment, inc.

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### MEMORANDUM

DATE: January 7, 2019

TO: Steve Hall, START-IV Project Manager, E & E, Seattle, Washington

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington *MW*

SUBJ: **Organic Data Quality Assurance Review, May Creek Removal Action Site, Renton, Washington**

REF: TO: TO-68HE0718F0470 PAN: 1004530.0470.001.01

The data quality assurance review of 2 soil samples collected from the May Creek Removal Action site located in Renton, Washington, has been completed. Hydrocarbon Identification analysis (Ecology Method NWTPH-HCID) was performed by Test America, Inc., Tacoma, Washington. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Manual Process (S2B/4VM).

The samples were numbered: 18111101 18111103

#### Data Qualifications:

**1. Sample Holding Times: Acceptable.**

The samples were received at 7.9°C, above the QC limits of 4°C ± 2°C. The samples were maintained on ice after sample collection until receipt at the laboratory as much as possible. The samples were hand-delivered to the laboratory (located approximately 25 miles from the packaging location) immediately after packaging, so it's likely that the ice in the cooler did not have enough time to fully cool the samples. No actions were taken based on this information. The samples were collected on November 19, 2018, extracted on November 23, 2018, and analyzed by December 5, 2018, therefore meeting QC criteria of less than 14 days between collection and extraction for soil samples and less than 40 days between extraction and analysis.

**2. Initial Calibration: Acceptable.**

Calculations were verified as correct. All relative percent differences (RPDs) were within the laboratory control limits.

**3. Continuing Calibration: Acceptable.**

Calculations were verified as correct. All percent differences (%Ds) were within the laboratory control limits.

**4. Error Determination: Not Performed.**

Samples necessary for bias and precision determination were not provided to the laboratory. All samples were flagged RND (Recovery Not Determined) and PND (Precision Not Determined), although the flags are not found on the Form I's.

**5. Blanks: Acceptable.**

A method blank was analyzed for each extraction batch for each matrix and analysis system. Diesel- and motor oil-range TPHs were not detected in the method blank.

**6. System Monitoring Compounds (SMC): Acceptable.**

All recoveries of the SMCs were greater than 10% and within QC limits.

**7. Performance Evaluation Samples: Not Provided.**

Performance evaluation samples were not provided to the laboratory.

**8. Matrix Spike (MS) and MS Duplicate (MSD): Acceptable.**

MS and MSD results were within QC limits.

**9. Duplicates: Acceptable.**

All duplicate and spike duplicate results were within QC limits.

**10. Quantitation and Quantitation Limits: Acceptable.**

Sample concentrations were correctly calculated.

**11. Laboratory Contact: Not Required.**

No laboratory contact was required.

**12. Overall Assessment of Data for Use**

A total of six results were validated in this data memorandum. No sample results were qualified as estimated quantities (J) based on duplicate precision outliers, spike accuracy outliers, holding time outliers, incorrect sample containers, or sample temperature outliers. No sample results were rejected (R).

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the analytical method(s), the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, and/or the Office of Emergency and Remedial Response Publication "National Functional Guidelines for Superfund Organic Methods Data Review, January 2017". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

### Data Qualifiers and Definitions

- H - The sample result is biased high.
- J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
- K - The bias of the sample is not known.
- L - The sample result is biased low.
- Q - Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.
- R - The data is rejected and unusable. The analyte may or may not be present in the sample.
- U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.



FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82002-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111101 Lab Sample ID: 580-82002-1  
 Matrix: Solid Lab File ID: 059F1301.D  
 Analysis Method: NWTPH-HCID Date Collected: 11/19/2018 14:45  
 Extraction Method: 3546 Date Extracted: 11/23/2018 19:16  
 Sample wt/vol: 10.585(g) Date Analyzed: 12/04/2018 23:43  
 Con. Extract Vol.: 10(mL) Dilution Factor: 2.5  
 Injection Volume: 2(uL) GC Column: ZB-1HT ID: 0.25 (mm)  
 % Moisture: 30.2 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 290300 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	RL
STL00299	Motor Oil	490		340	340
STL00228	Gasoline	ND		68	68
STL00096	#2 Diesel (>C12-C24)	ND		170	170

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	77		50-150
460-00-4	4-Bromofluorobenzene (Surr)	80		50-150

*Handwritten:* New 1-7-18



FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82002-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111103 Lab Sample ID: 580-82002-2  
 Matrix: Solid Lab File ID: 062F1901.D  
 Analysis Method: NWTPH-HCID Date Collected: 11/19/2018 14:55  
 Extraction Method: 3546 Date Extracted: 11/23/2018 19:16  
 Sample wt/vol: 10.757(g) Date Analyzed: 12/05/2018 01:51  
 Con. Extract Vol.: 10(mL) Dilution Factor: 2.5  
 Injection Volume: 2(uL) GC Column: ZB-1HT ID: 0.25(mm)  
 % Moisture: 26.5 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 290300 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	RL
STL00299	Motor Oil	390		320	320
STL00228	Gasoline	ND		63	63
STL00096	#2 Diesel (>C12-C24)	ND		160	160

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	74		50-150
460-00-4	4-Bromofluorobenzene (Surr)	73		50-150



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### MEMORANDUM

DATE: January 7, 2019

TO: Steve Hall, START-IV Project Manager, E & E, Seattle, Washington

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington MW

SUBJ: **Organic Data Quality Assurance Review, May Creek Removal Action Site, Renton, Washington**

REF: TO: TO-68HE0718F0470 PAN: 1004530.0470.001.01

The data quality assurance review of 4 soil samples collected from the May Creek Removal Action site located in Renton, Washington, has been completed. Hydrocarbon Identification analysis (Ecology Method NWTPH-HCID) was performed by Test America, Inc., Tacoma, Washington. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Manual Process (S2B/4VM).

The samples were numbered:

18111110

18111111

18111112

18111113

#### Data Qualifications:

##### 1. **Sample Holding Times: Acceptable.**

The samples were received at 7.9°C, above the QC limits of 4°C ± 2°C. The samples were maintained on ice after sample collection until receipt at the laboratory as much as possible. The samples were hand-delivered to the laboratory (located approximately 25 miles from the packaging location) immediately after packaging, so it's likely that the ice in the cooler did not have enough time to fully cool the samples. No actions were taken based on this information. The samples were collected on December 28, 2018, extracted on December 10, 2018, and analyzed by December 18, 2018, therefore meeting QC criteria of less than 14 days between collection and extraction for soil samples and less than 40 days between extraction and analysis.

##### 2. **Initial Calibration: Acceptable.**

Calculations were verified as correct. All relative percent differences (RPDs) were within the laboratory control limits.

##### 3. **Continuing Calibration: Acceptable.**

Calculations were verified as correct. All percent differences (%Ds) were within the laboratory control limits.



**4. Error Determination: Not Performed.**

Samples necessary for bias and precision determination were not provided to the laboratory. All samples were flagged RND (Recovery Not Determined) and PND (Precision Not Determined), although the flags are not found on the Form I's.

**5. Blanks: Acceptable.**

A method blank was analyzed for each extraction batch for each matrix and analysis system. Diesel- and motor oil-range TPHs were not detected in the method blank. There were no detections in the rinsate blank.

**6. System Monitoring Compounds (SMC): Acceptable.**

All recoveries of the SMCs were greater than 10% and within QC limits.

**7. Performance Evaluation Samples: Not Provided.**

Performance evaluation samples were not provided to the laboratory.

**8. Duplicates: Acceptable.**

All duplicate and spike duplicate results were within QC limits.

**9. Quantitation and Quantitation Limits: Acceptable.**

Sample concentrations were correctly calculated.

**10. Laboratory Contact: Not Required.**

No laboratory contact was required.

**11. Overall Assessment of Data for Use**

A total of 12 results were validated in this data memorandum. No sample results were qualified as estimated quantities (J) based on duplicate precision outliers, spike accuracy outliers, holding time outliers, incorrect sample containers, or sample temperature outliers. No sample results were rejected (R).

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the analytical method(s), the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, and/or the Office of Emergency and Remedial Response Publication "National Functional Guidelines for Superfund Organic Methods Data Review, January 2017". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.



### Data Qualifiers and Definitions

- H - The sample result is biased high.
- J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
- K - The bias of the sample is not known.
- L - The sample result is biased low.
- Q - Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.
- R - The data is rejected and unusable. The analyte may or may not be present in the sample.
- U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.





FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82199-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111110 Lab Sample ID: 580-82199-1  
 Matrix: Solid Lab File ID: 121718-057.D  
 Analysis Method: NWTPH-HCID Date Collected: 11/28/2018 08:20  
 Extraction Method: 3546 Date Extracted: 12/10/2018 17:59  
 Sample wt/vol: 11.218(g) Date Analyzed: 12/18/2018 12:09  
 Con. Extract Vol.: 10(mL) Dilution Factor: 1  
 Injection Volume: 2(uL) GC Column: ZB-1HT ID: 0.25 (mm)  
 % Moisture: 13.8 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 291358 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	RL
STL00299	Motor Oil	ND		100	100
STL00228	Gasoline	ND		21	21
STL00096	#2 Diesel (>C12-C24)	ND		52	52

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	86		50-150
460-00-4	4-Bromofluorobenzene (Surr)	82		50-150

*Jan 1-7-19*

FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82199-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111111 Lab Sample ID: 580-82199-2  
 Matrix: Solid Lab File ID: 121718-058.D  
 Analysis Method: NWTPH-HCID Date Collected: 11/28/2018 09:20  
 Extraction Method: 3546 Date Extracted: 12/10/2018 17:59  
 Sample wt/vol: 10.946(g) Date Analyzed: 12/18/2018 12:29  
 Con. Extract Vol.: 10(mL) Dilution Factor: 1  
 Injection Volume: 2(uL) GC Column: ZB-1HT ID: 0.25 (mm)  
 % Moisture: 19.5 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 291358 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	RL
STL00299	Motor Oil	ND		110	110
STL00228	Gasoline	ND		23	23
STL00096	#2 Diesel (>C12-C24)	ND		57	57

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	88		50-150
460-00-4	4-Bromofluorobenzene (Surr)	85		50-150

*MW 7-19*

FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82199-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111112 Lab Sample ID: 580-82199-3  
 Matrix: Solid Lab File ID: 121718-059.D  
 Analysis Method: NWTPH-HCID Date Collected: 11/28/2018 11:18  
 Extraction Method: 3546 Date Extracted: 12/10/2018 17:59  
 Sample wt/vol: 10.345(g) Date Analyzed: 12/18/2018 12:49  
 Con. Extract Vol.: 10(mL) Dilution Factor: 1  
 Injection Volume: 2(uL) GC Column: ZB-1HT ID: 0.25(mm)  
 % Moisture: 14.3 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 291358 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	RL
STL00299	Motor Oil	ND		110	110
STL00228	Gasoline	ND		23	23
STL00096	#2 Diesel (>C12-C24)	ND		56	56

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	92		50-150
460-00-4	4-Bromofluorobenzene (Surr)	84		50-150

*Handwritten signature/initials*

FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82199-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111113 Lab Sample ID: 580-82199-4  
 Matrix: Solid Lab File ID: 121718-060.D  
 Analysis Method: NWTPH-HCID Date Collected: 11/28/2018 13:50  
 Extraction Method: 3546 Date Extracted: 12/10/2018 17:59  
 Sample wt/vol: 10.101(g) Date Analyzed: 12/18/2018 13:10  
 Con. Extract Vol.: 10(mL) Dilution Factor: 1  
 Injection Volume: 2(uL) GC Column: ZB-1HT ID: 0.25(mm)  
 % Moisture: 22.5 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 291358 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	RL
STL00299	Motor Oil	ND		130	130
STL00228	Gasoline	ND		26	26
STL00096	#2 Diesel (>C12-C24)	ND		64	64

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	93		50-150
460-00-4	4-Bromofluorobenzene (Surr)	87		50-150

*mw* 17-19



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### MEMORANDUM

DATE: January 7, 2019

TO: Steve Hall, START-IV Project Manager, E & E, Seattle, Washington

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington

SUBJ: **Organic Data Quality Assurance Review, May Creek Removal Action Site, Renton, Washington**

REF: TO: TO-68HE0718F0470 PAN: 1004530.0470.001.01

The data quality assurance review of one water and four soil samples collected from the May Creek Removal Action site in Renton, Washington, has been completed. Volatile Organic Compound (VOC) analysis (EPA Method 8260) was performed by Test America, Inc., Tacoma, Washington. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Manual Process (S2B/4VM).

The samples were numbered:

18111110    18111111    18111112    18111113    18111114

#### Data Qualifications:

##### **1. Sample Holding Times: Acceptable.**

The samples were received at 7.9°C, above the QC limits of 4°C ± 2°C. The samples were maintained on ice after sample collection until receipt at the laboratory as much as possible. The samples were hand-delivered to the laboratory (located approximately 25 miles from the packaging location) immediately after packaging, so it's likely that the ice in the cooler did not have enough time to fully cool the samples. No actions were taken based on this information. The samples were collected on November 28 and 29, 2018, were received at the laboratory on November 29, 2018, and were analyzed by December 11, 2018, therefore meeting QC criteria of less than 14 days between collection and analysis for soil and preserved water samples.

##### **2. Tuning: Satisfactory.**

Tuning was performed at the beginning of each 12-hour analysis sequence. All results were within QC limits except the M/E 176 result of 94.6% vs the QC limits of 95.0% - 101.0% of mass 174 on December 3, 2018. This value meets method criteria and is the result of a rounding/significant figure precision error. No issues were taken based on this result.

##### **3. Initial Calibration: Satisfactory.**

All average Relative Response Factors (RRFs) were within the QC limits except chloroethane associated with the soil samples; associated positive results were qualified as estimated quantities with a low bias (JL) and sample quantitation limits were rejected (R). All Relative Standard Deviations (RSDs) and/or correlation coefficients were within the QC limits.





**4. Continuing Calibration: Satisfactory.**

All RRFs were within the QC limits except styrene and tetrachloroethene associated with the water sample (sample quantitation limit were rejected [R]). All % differences were within the QC limits that potentially affected sample results except naphthalene, 1,2,4-trichlorobenzene, and 1,2,3-trichlorobenzene with low recoveries associated with soil samples analyzed on December 3 and 10, 2018 (positive results and sample quantitation limits were qualified as estimated quantities with a low bias (JL or UJL) and dichlorodifluoromethane and 1,2-dibromo-3-chloropropane with a low result associated with the water sample (the sample quantitation limit was qualified as an estimated quantity with a low bias [R])).

**5. Blanks: Acceptable.**

A method blank was analyzed for each 20 sample batch per matrix. There were no detections in any method blank. There were no detections in the trip blank.

**6. System Monitoring Compounds (SMCs): Acceptable.**

All SMC recoveries were within QC limits.

**7. Blank Spike (BS)/BS Duplicate (BSD) Analysis: Satisfactory.**

BS and BSD analyses were performed per SDG or per matrix per concentration level, whichever was more frequent. All recoveries were within QC limits except high bromomethane, chloroethane, dichlorodifluoromethane and trichlorofluoromethane 1,1-dichloroethene, chloroethane, cis-1,2-dichloroethene, dichlorodifluoromethane, methylene chloride, trans-1,2-dichloroethene, and trichlorofluoromethane results associated with the soil samples and high chloroform and cis-1,2-dichloroethene results associated with the water sample. Positive sample results associated with high recovery outliers were qualified as estimated quantities with a high bias (JH).

**8. Spike Duplicate Analysis: Satisfactory.**

Spike duplicate analyses were performed per SDG or per matrix per concentration level, whichever was more frequent. All spike duplicate results were within QC limits except 1,1-dichloroethane, 1,2,3-trichlorobenzene, cis-1,2-dichloroethene, methyl tert-butyl ether, methylene chloride, naphthalene and trans-1,2-dichloroethene associated with the soil samples and 1,2,3-trichlorobenzene, cis-1,2-dichloroethene, chloroform, 1,1-dichloroethene, and trichloroethene associated with the water sample. No additional actions were taken based on duplicate outliers alone.

**9. Internal Standards: Acceptable.**

All internal standards were within  $\pm 30$  seconds of the continuing calibration internal standard retention times. All area counts were within 50 % to 200 % of the continuing calibration area counts.

**10. Performance Evaluation Sample Analysis: Not Provided.**

Performance evaluation samples were not provided to the laboratory.

**11. Overall Assessment of Data for Use**

The following samples were provided to the laboratory with a significantly different initial weight than that required by the reference method: 18111110 (580-82199-1), 18111111 (580-82199-2), 18111112 (580-82199-3) and 18111113 (580-82199-4). The method requires 10 grams. The amount provided was below this range; sample results were qualified as estimated quantities with an unknown bias (JK or UJK).



A total of 300 results were validated in this data memorandum. No sample results were qualified as estimated quantities (J) based on duplicate precision outliers, spike accuracy outliers, holding time outliers, incorrect sample containers, or sample temperature outliers. No sample results were rejected (R).

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the analytical method(s), the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, and/or the Office of Emergency and Remedial Response Publication "National Functional Guidelines for Superfund Organic Methods Data Review, January 2017". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

#### Data Qualifiers and Definitions

- H - The sample result is biased high.
- J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
- K - The bias of the sample is not known.
- L - The sample result is biased low.
- N - The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification".
- NJ - The analyte has been "tentatively identified" or "presumptively" as present and the associated numerical value is the estimated concentration in the sample.
- Q - Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.
- R - The data is rejected and unusable. The analyte may or may not be present in the sample.
- U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.



FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82199-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111110 Lab Sample ID: 580-82199-1  
 Matrix: Solid Lab File ID: 120318008.D  
 Analysis Method: 8260C Date Collected: 11/28/2018 08:20  
 Sample wt/vol: 6.00(g) Date Analyzed: 12/03/2018 11:57  
 Soil Aliquot Vol: 1.075 (mL) Dilution Factor: 1  
 Soil Extract Vol.: 10(mL) GC Column: DB-VRX ID: 0.25 (mm)  
 % Moisture: 13.8 Level: (low/med) Medium  
 Analysis Batch No.: 290155 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
630-20-6	1,1,1,2-Tetrachloroethane	ND		84	22
71-55-6	1,1,1-Trichloroethane	ND		84	20
79-34-5	1,1,2,2-Tetrachloroethane	ND		42	16
79-00-5	1,1,2-Trichloroethane	ND		42	15
75-34-3	1,1-Dichloroethane	ND		84	8.8
75-35-4	1,1-Dichloroethene	ND		84	26
563-58-6	1,1-Dichloropropene	ND		84	11
96-18-4	1,2,3-Trichloropropane	ND		84	24
95-63-6	1,2,4-Trimethylbenzene	ND		84	28
96-12-8	1,2-Dibromo-3-Chloropropane	140	J Q	520	83
106-93-4	1,2-Dibromoethane	ND		42	8.0
95-50-1	1,2-Dichlorobenzene	21	J Q	84	18
107-06-2	1,2-Dichloroethane	ND		42	12
78-87-5	1,2-Dichloropropane	ND		42	14
108-67-8	1,3,5-Trimethylbenzene	ND		84	16
541-73-1	1,3-Dichlorobenzene	ND		130	28
142-28-9	1,3-Dichloropropane	ND		130	29
106-46-7	1,4-Dichlorobenzene	ND		130	23
594-20-7	2,2-Dichloropropane	ND		84	25
95-49-8	2-Chlorotoluene	ND		84	18
106-43-4	4-Chlorotoluene	ND		84	21
99-87-6	4-Isopropyltoluene	ND		84	21
71-43-2	Benzene	ND		63	16
108-86-1	Bromobenzene	ND		210	36
74-97-5	Bromochloromethane	ND		84	13
75-27-4	Bromodichloromethane	ND		130	28
75-25-2	Bromoform	ND		420	55
74-83-9	Bromomethane	ND		420	28
56-23-5	Carbon tetrachloride	ND		42	8.0
108-90-7	Chlorobenzene	ND		84	21
75-00-3	Chloroethane	ND		840	110
67-66-3	Chloroform	ND		84	8.8
74-87-3	Chloromethane	ND		210	21
156-59-2	cis-1,2-Dichloroethene	ND		130	26
10061-01-5	cis-1,3-Dichloropropene	ND		42	8.4
124-48-1	Dibromochloromethane	ND		84	24



FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82199-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111110 Lab Sample ID: 580-82199-1  
 Matrix: Solid Lab File ID: 120318008.D  
 Analysis Method: 8260C Date Collected: 11/28/2018 08:20  
 Sample wt/vol: 6.00(g) Date Analyzed: 12/03/2018 11:57  
 Soil Aliquot Vol: 1.075 (mL) Dilution Factor: 1  
 Soil Extract Vol.: 10(mL) GC Column: DB-VRX ID: 0.25 (mm)  
 % Moisture: 13.8 Level: (low/med) Medium  
 Analysis Batch No.: 290155 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
74-95-3	Dibromomethane	ND		130	15
75-71-8	Dichlorodifluoromethane	ND		420	96
100-41-4	Ethylbenzene	ND		84	19
87-68-3	Hexachlorobutadiene	88	JQ	310	70
98-82-8	Isopropylbenzene	ND		84	18
1634-04-4	Methyl tert-butyl ether	ND		84	13
75-09-2	Methylene Chloride	ND		520	140
179601-23-1	m-Xylene & p-Xylene	ND		420	31
104-51-8	n-Butylbenzene	ND		310	53
103-65-1	N-Propylbenzene	ND		84	14
95-47-6	o-Xylene	ND		130	28
135-98-8	sec-Butylbenzene	ND		84	18
100-42-5	Styrene	ND		84	13
98-06-6	t-Butylbenzene	ND		84	16
127-18-4	Tetrachloroethene	ND		84	11
108-88-3	Toluene	ND		310	28
156-60-5	trans-1,2-Dichloroethene	ND		130	31
10061-02-6	trans-1,3-Dichloropropene	ND		84	15
79-01-6	Trichloroethene	ND		130	46
75-69-4	Trichlorofluoromethane	ND		420	24
75-01-4	Vinyl chloride	ND		310	55

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	102		80-121
460-00-4	4-Bromofluorobenzene (Surr)	102		80-120
1868-53-7	Dibromofluoromethane (Surr)	100		80-120
2037-26-5	Toluene-d8 (Surr)	98		80-120
98-08-8	Trifluorotoluene (Surr)	102		80-120

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FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82199-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111110 Lab Sample ID: 580-82199-1  
 Matrix: Solid Lab File ID: 121018023.D  
 Analysis Method: 8260C Date Collected: 11/28/2018 08:20  
 Sample wt/vol: 6.00(g) Date Analyzed: 12/10/2018 23:44  
 Soil Aliquot Vol: 1.075 (mL) Dilution Factor: 1  
 Soil Extract Vol.: 10 (mL) GC Column: DB-VRX ID: 0.25 (mm)  
 % Moisture: 13.8 Level: (low/med) Medium  
 Analysis Batch No.: 290711 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
87-61-6	1,2,3-Trichlorobenzene	ND		310	67
120-82-1	1,2,4-Trichlorobenzene	ND		130	32
91-20-3	Naphthalene	ND		210	59

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	88		80-121
460-00-4	4-Bromofluorobenzene (Surr)	102		80-120
1868-53-7	Dibromofluoromethane (Surr)	95		80-120
2037-26-5	Toluene-d8 (Surr)	98		80-120
98-08-8	Trifluorotoluene (Surr)	101		80-120

*MW 1719*



FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82199-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111111 Lab Sample ID: 580-82199-2  
 Matrix: Solid Lab File ID: 120318009.D  
 Analysis Method: 8260C Date Collected: 11/28/2018 09:20  
 Sample wt/vol: 6.80(g) Date Analyzed: 12/03/2018 12:22  
 Soil Aliquot Vol: 1.075 (mL) Dilution Factor: 1  
 Soil Extract Vol.: 10(mL) GC Column: DB-VRX ID: 0.25(mm)  
 % Moisture: 19.5 Level: (low/med) Medium  
 Analysis Batch No.: 290155 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
630-20-6	1,1,1,2-Tetrachloroethane	ND		83	22
71-55-6	1,1,1-Trichloroethane	ND		83	20
79-34-5	1,1,2,2-Tetrachloroethane	ND		41	16
79-00-5	1,1,2-Trichloroethane	ND		41	15
75-34-3	1,1-Dichloroethane	ND		83	8.7
75-35-4	1,1-Dichloroethene	ND		83	25
563-58-6	1,1-Dichloropropene	ND		83	11
87-61-6	1,2,3-Trichlorobenzene	ND		310	66
96-18-4	1,2,3-Trichloropropane	ND		83	24
120-82-1	1,2,4-Trichlorobenzene	ND		120	32
95-63-6	1,2,4-Trimethylbenzene	ND		83	28
96-12-8	1,2-Dibromo-3-Chloropropane	ND		520	82
106-93-4	1,2-Dibromoethane	ND		41	7.9
95-50-1	1,2-Dichlorobenzene	ND		83	18
107-06-2	1,2-Dichloroethane	ND		41	11
78-87-5	1,2-Dichloropropane	ND		41	14
108-67-8	1,3,5-Trimethylbenzene	ND		83	16
541-73-1	1,3-Dichlorobenzene	ND		120	28
142-28-9	1,3-Dichloropropane	ND		120	29
106-46-7	1,4-Dichlorobenzene	ND		120	22
594-20-7	2,2-Dichloropropane	ND		83	25
95-49-8	2-Chlorotoluene	ND		83	18
106-43-4	4-Chlorotoluene	ND		83	20
99-87-6	4-Isopropyltoluene	ND		83	21
71-43-2	Benzene	ND		62	16
108-86-1	Bromobenzene	ND		210	35
74-97-5	Bromochloromethane	ND		83	13
75-27-4	Bromodichloromethane	ND		120	28
75-25-2	Bromoform	ND		410	54
74-83-9	Bromomethane	ND		410	28
56-23-5	Carbon tetrachloride	ND		41	7.9
108-90-7	Chlorobenzene	ND		83	20
75-00-3	Chloroethane	ND		830	110
67-66-3	Chloroform	ND		83	8.7
74-87-3	Chloromethane	ND		210	21
156-59-2	cis-1,2-Dichloroethene	ND		120	26

*mw j-7-10*

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82199-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111111 Lab Sample ID: 580-82199-2  
 Matrix: Solid Lab File ID: 120318009.D  
 Analysis Method: 8260C Date Collected: 11/28/2018 09:20  
 Sample wt/vol: 6.80(g) Date Analyzed: 12/03/2018 12:22  
 Soil Aliquot Vol: 1.075 (mL) Dilution Factor: 1  
 Soil Extract Vol.: 10(mL) GC Column: DB-VRX ID: 0.25(mm)  
 % Moisture: 19.5 Level: (low/med) Medium  
 Analysis Batch No.: 290155 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
10061-01-5	cis-1,3-Dichloropropene	ND		41	8.3
124-48-1	Dibromochloromethane	ND		83	23
74-95-3	Dibromomethane	ND		120	15
75-71-8	Dichlorodifluoromethane	ND		410	95
100-41-4	Ethylbenzene	ND		83	19
87-68-3	Hexachlorobutadiene	ND		310	69
98-82-8	Isopropylbenzene	ND		83	18
1634-04-4	Methyl tert-butyl ether	ND		83	12
75-09-2	Methylene Chloride	ND		520	130
179601-23-1	m-Xylene & p-Xylene	ND		410	31
91-20-3	Naphthalene	ND		210	59
104-51-8	n-Butylbenzene	ND		310	52
103-65-1	N-Propylbenzene	ND		83	14
95-47-6	o-Xylene	ND		120	28
135-98-8	sec-Butylbenzene	ND		83	18
100-42-5	Styrene	ND		83	13
98-06-6	t-Butylbenzene	ND		83	16
127-18-4	Tetrachloroethene	ND		83	11
108-88-3	Toluene	ND		310	28
156-60-5	trans-1,2-Dichloroethene	ND		120	30
10061-02-6	trans-1,3-Dichloropropene	ND		83	14
79-01-6	Trichloroethene	ND		120	46
75-69-4	Trichlorofluoromethane	ND		410	24
75-01-4	Vinyl chloride	ND		310	54

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	108		80-121
460-00-4	4-Bromofluorobenzene (Surr)	101		80-120
1868-53-7	Dibromofluoromethane (Surr)	102		80-120
2037-26-5	Toluene-d8 (Surr)	97		80-120
98-08-8	Trifluorotoluene (Surr)	106		80-120

*MW 17/19*

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle

Job No.: 580-82199-1

SDG No.: \_\_\_\_\_

Client Sample ID: 18111112

Lab Sample ID: 580-82199-3

Matrix: Solid

Lab File ID: 120318010.D

Analysis Method: 8260C

Date Collected: 11/28/2018 11:18

Sample wt/vol: 6.59(g)

Date Analyzed: 12/03/2018 12:47

Soil Aliquot Vol: 1.075 (mL)

Dilution Factor: 1

Soil Extract Vol.: 10(mL)

GC Column: DB-VRX ID: 0.25 (mm)

% Moisture: 14.3

Level: (low/med) Medium

Analysis Batch No.: 290155

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
630-20-6	1,1,1,2-Tetrachloroethane	ND		77	21
71-55-6	1,1,1-Trichloroethane	ND		77	19
79-34-5	1,1,2,2-Tetrachloroethane	ND		39	15
79-00-5	1,1,2-Trichloroethane	ND		39	14
75-34-3	1,1-Dichloroethane	ND		77	8.1
75-35-4	1,1-Dichloroethene	ND		77	24
563-58-6	1,1-Dichloropropene	ND		77	10
87-61-6	1,2,3-Trichlorobenzene	ND		290	62
96-18-4	1,2,3-Trichloropropane	ND		77	22
120-82-1	1,2,4-Trichlorobenzene	ND		120	30
95-63-6	1,2,4-Trimethylbenzene	ND		77	26
96-12-8	1,2-Dibromo-3-Chloropropane	ND		480	77
106-93-4	1,2-Dibromoethane	ND		39	7.4
95-50-1	1,2-Dichlorobenzene	ND		77	17
107-06-2	1,2-Dichloroethane	ND		39	11
78-87-5	1,2-Dichloropropane	ND		39	13
108-67-8	1,3,5-Trimethylbenzene	ND		77	15
541-73-1	1,3-Dichlorobenzene	ND		120	26
142-28-9	1,3-Dichloropropane	ND		120	27
106-46-7	1,4-Dichlorobenzene	ND		120	21
594-20-7	2,2-Dichloropropane	ND		77	23
95-49-8	2-Chlorotoluene	ND		77	17
106-43-4	4-Chlorotoluene	ND		77	19
99-87-6	4-Isopropyltoluene	ND		77	20
71-43-2	Benzene	ND		58	15
108-86-1	Bromobenzene	ND		190	33
74-97-5	Bromochloromethane	ND		77	12
75-27-4	Bromodichloromethane	ND		120	26
75-25-2	Bromoform	ND		390	51
74-83-9	Bromomethane	ND		390	26
56-23-5	Carbon tetrachloride	ND		39	7.4
108-90-7	Chlorobenzene	ND		77	19
75-00-3	Chloroethane	ND		77	100
67-66-3	Chloroform	ND		77	8.1
74-87-3	Chloromethane	ND		190	20
156-59-2	cis-1,2-Dichloroethene	ND		120	24



FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82199-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111112 Lab Sample ID: 580-82199-3  
 Matrix: Solid Lab File ID: 120318010.D  
 Analysis Method: 8260C Date Collected: 11/28/2018 11:18  
 Sample wt/vol: 6.59(g) Date Analyzed: 12/03/2018 12:47  
 Soil Aliquot Vol: 1.075 (mL) Dilution Factor: 1  
 Soil Extract Vol.: 10(mL) GC Column: DB-VRX ID: 0.25(mm)  
 % Moisture: 14.3 Level: (low/med) Medium  
 Analysis Batch No.: 290155 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
10061-01-5	cis-1,3-Dichloropropene	ND		39	7.7
124-48-1	Dibromochloromethane	ND		77	22
74-95-3	Dibromomethane	ND		120	14
75-71-8	Dichlorodifluoromethane	ND		390	89
100-41-4	Ethylbenzene	ND		77	18
87-68-3	Hexachlorobutadiene	ND		290	65
98-82-8	Isopropylbenzene	ND		77	17
1634-04-4	Methyl tert-butyl ether	ND	*	77	12
75-09-2	Methylene Chloride	ND	*	480	130
179601-23-1	m-Xylene & p-Xylene	ND		390	29
91-20-3	Naphthalene	ND	* <i>mw</i>	190	55
104-51-8	n-Butylbenzene	ND		290	49
103-65-1	N-Propylbenzene	ND		77	13
95-47-6	o-Xylene	ND		120	26
135-98-8	sec-Butylbenzene	ND		77	17
100-42-5	Styrene	ND		77	12
98-06-6	t-Butylbenzene	ND		77	15
127-18-4	Tetrachloroethene	ND		77	10
108-88-3	Toluene	ND		290	26
156-60-5	trans-1,2-Dichloroethene	ND		120	28
10061-02-6	trans-1,3-Dichloropropene	ND		77	14
79-01-6	Trichloroethene	ND		120	43
75-69-4	Trichlorofluoromethane	ND	* <i>mw</i>	390	22
75-01-4	Vinyl chloride	ND		290	51

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	107		80-121
460-00-4	4-Bromofluorobenzene (Surr)	102		80-120
1868-53-7	Dibromofluoromethane (Surr)	113		80-120
2037-26-5	Toluene-d8 (Surr)	98		80-120
98-08-8	Trifluorotoluene (Surr)	92		80-120

*mw 12-7-19*

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle

Job No.: 580-82199-1

SDG No.: \_\_\_\_\_

Client Sample ID: 18111113

Lab Sample ID: 580-82199-4

Matrix: Solid

Lab File ID: 120318011.D

Analysis Method: 8260C

Date Collected: 11/28/2018 13:50

Sample wt/vol: 5.83(g)

Date Analyzed: 12/03/2018 13:12

Soil Aliquot Vol: 1.075 (mL)

Dilution Factor: 1

Soil Extract Vol.: 10(mL)

GC Column: DB-VRX ID: 0.25 (mm)

% Moisture: 22.5

Level: (low/med) Medium

Analysis Batch No.: 290155

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
630-20-6	1,1,1,2-Tetrachloroethane	ND		100	27
71-55-6	1,1,1-Trichloroethane	ND		100	24
79-34-5	1,1,2,2-Tetrachloroethane	ND		50	19
79-00-5	1,1,2-Trichloroethane	ND		50	19
75-34-3	1,1-Dichloroethane	ND		100	11
75-35-4	1,1-Dichloroethene	ND		100	31
563-58-6	1,1-Dichloropropene	ND		100	13
87-61-6	1,2,3-Trichlorobenzene	ND		380	80
96-18-4	1,2,3-Trichloropropane	ND		100	29
120-82-1	1,2,4-Trichlorobenzene	ND		150	39
95-63-6	1,2,4-Trimethylbenzene	ND		100	34
96-12-8	1,2-Dibromo-3-Chloropropane	ND		630	99
106-93-4	1,2-Dibromoethane	ND		50	9.5
95-50-1	1,2-Dichlorobenzene	ND		100	22
107-06-2	1,2-Dichloroethane	ND		50	14
78-87-5	1,2-Dichloropropane	ND		50	17
108-67-8	1,3,5-Trimethylbenzene	ND		100	19
541-73-1	1,3-Dichlorobenzene	ND		150	33
142-28-9	1,3-Dichloropropane	ND		150	35
106-46-7	1,4-Dichlorobenzene	ND		150	27
594-20-7	2,2-Dichloropropane	ND		100	30
95-49-8	2-Chlorotoluene	ND		100	22
106-43-4	4-Chlorotoluene	ND		100	25
99-87-6	4-Isopropyltoluene	ND		100	26
71-43-2	Benzene	ND		75	19
108-86-1	Bromobenzene	ND		250	43
74-97-5	Bromochloromethane	ND		100	16
75-27-4	Bromodichloromethane	ND		150	34
75-25-2	Bromoform	ND		500	66
74-83-9	Bromomethane	ND		500	34
56-23-5	Carbon tetrachloride	ND		50	9.5
108-90-7	Chlorobenzene	ND		100	25
75-00-3	Chloroethane	ND		1000	140mR
67-66-3	Chloroform	ND		100	11
74-87-3	Chloromethane	ND		250	25
156-59-2	cis-1,2-Dichloroethene	ND		150	32

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82199-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111113 Lab Sample ID: 580-82199-4  
 Matrix: Solid Lab File ID: 120318011.D  
 Analysis Method: 8260C Date Collected: 11/28/2018 13:50  
 Sample wt/vol: 5.83(g) Date Analyzed: 12/03/2018 13:12  
 Soil Aliquot Vol: 1.075 (mL) Dilution Factor: 1  
 Soil Extract Vol.: 10(mL) GC Column: DB-VRX ID: 0.25(mm)  
 % Moisture: 22.5 Level: (low/med) Medium  
 Analysis Batch No.: 290155 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
10061-01-5	cis-1,3-Dichloropropene	ND		50	10
124-48-1	Dibromochloromethane	ND		100	28
74-95-3	Dibromomethane	ND		150	19
75-71-8	Dichlorodifluoromethane	ND	*	500	110
100-41-4	Ethylbenzene	ND		100	23
87-68-3	Hexachlorobutadiene	ND		380	84
98-82-8	Isopropylbenzene	ND		100	22
1634-04-4	Methyl tert-butyl ether	ND	*	100	15
75-09-2	Methylene Chloride	ND	*	630	160
179601-23-1	m-Xylene & p-Xylene	ND		500	37
91-20-3	Naphthalene	ND	***	250	71
104-51-8	n-Butylbenzene	ND		380	63
103-65-1	N-Propylbenzene	ND		100	17
95-47-6	o-Xylene	ND		150	34
135-98-8	sec-Butylbenzene	ND		100	22
100-42-5	Styrene	ND		100	15
98-06-6	t-Butylbenzene	ND		100	19
127-18-4	Tetrachloroethene	ND		100	13
108-88-3	Toluene	ND		380	34
156-60-5	trans-1,2-Dichloroethene	ND	*	150	37
10061-02-6	trans-1,3-Dichloropropene	ND		100	18
79-01-6	Trichloroethene	ND		150	55
75-69-4	Trichlorofluoromethane	ND	***	500	29
75-01-4	Vinyl chloride	ND		380	66

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	93		80-121
460-00-4	4-Bromofluorobenzene (Surr)	101		80-120
1868-53-7	Dibromofluoromethane (Surr)	97		80-120
2037-26-5	Toluene-d8 (Surr)	99		80-120
98-08-8	Trifluorotoluene (Surr)	97		80-120

*Handwritten signature and date: 12-18*

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82199-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111114 Lab Sample ID: 580-82199-5  
 Matrix: Water Lab File ID: 12111812.D  
 Analysis Method: 8260C Date Collected: 11/29/2018 06:20  
 Sample wt/vol: 5(mL) Date Analyzed: 12/11/2018 16:40  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: DB-VRX ID: 0.25(mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 290787 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-71-8	Dichlorodifluoromethane	ND		10	2.3
74-87-3	Chloromethane	ND		20	5.4
75-01-4	Vinyl chloride	ND		1.0	0.22
74-83-9	Bromomethane	ND		6.0	1.1
75-00-3	Chloroethane	ND		5.0	1.1
75-69-4	Trichlorofluoromethane	ND		3.0	0.63
75-35-4	1,1-Dichloroethene	ND		4.0	0.78
75-09-2	Methylene Chloride	ND		5.0	1.4
156-60-5	trans-1,2-Dichloroethene	ND		3.0	0.39
75-34-3	1,1-Dichloroethane	ND		2.0	0.22
594-20-7	2,2-Dichloropropane	ND		3.0	0.32
156-59-2	cis-1,2-Dichloroethene	ND		3.0	0.69
74-97-5	Bromochloromethane	ND		2.0	0.29
67-66-3	Chloroform	ND		5.0	0.50
71-55-6	1,1,1-Trichloroethane	ND		3.0	0.14
56-23-5	Carbon tetrachloride	ND		3.0	0.30
563-58-6	1,1-Dichloropropene	ND		3.0	0.29
71-43-2	Benzene	ND		3.0	0.53
107-06-2	1,2-Dichloroethane	ND		2.0	0.53
79-01-6	Trichloroethene	ND		3.0	0.85
78-87-5	1,2-Dichloropropane	ND		1.0	0.18
74-95-3	Dibromomethane	ND		2.0	0.34
75-27-4	Bromodichloromethane	ND		2.0	0.14
10061-01-5	cis-1,3-Dichloropropene	ND		1.0	0.20
108-88-3	Toluene	ND		2.0	0.39
10061-02-6	trans-1,3-Dichloropropene	ND		1.0	0.16
79-00-5	1,1,2-Trichloroethane	ND		1.0	0.24
127-18-4	Tetrachloroethene	ND		3.0	0.41
142-28-9	1,3-Dichloropropane	ND		2.0	0.35
124-48-1	Dibromochloromethane	ND		1.0	0.20
106-93-4	1,2-Dibromoethane	ND		2.0	0.40
108-90-7	Chlorobenzene	ND		2.0	0.44
100-41-4	Ethylbenzene	ND		3.0	0.50
630-20-6	1,1,1,2-Tetrachloroethane	ND		2.0	0.18
79-34-5	1,1,2,2-Tetrachloroethane	ND		3.0	0.52
179601-23-1	m-Xylene & p-Xylene	ND		3.0	0.75

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82199-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111114 Lab Sample ID: 580-82199-5  
 Matrix: Water Lab File ID: 12111812.D  
 Analysis Method: 8260C Date Collected: 11/29/2018 06:20  
 Sample wt/vol: 5(mL) Date Analyzed: 12/11/2018 16:40  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: DB-VRX ID: 0.25(mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 290787 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
95-47-6	o-Xylene	ND		2.0	0.15
100-42-5	Styrene	ND		5.0	0.51
75-25-2	Bromoform	ND		3.0	0.56
98-82-8	Isopropylbenzene	ND		2.0	0.51
108-86-1	Bromobenzene	ND		2.0	0.18
103-65-1	N-Propylbenzene	ND		3.0	0.50
96-18-4	1,2,3-Trichloropropane	ND		2.0	0.41
95-49-8	2-Chlorotoluene	ND		3.0	0.51
108-67-8	1,3,5-Trimethylbenzene	ND		3.0	0.55
106-43-4	4-Chlorotoluene	ND		2.0	0.51
98-06-6	t-Butylbenzene	ND		3.0	0.58
95-63-6	1,2,4-Trimethylbenzene	ND		3.0	0.61
135-98-8	sec-Butylbenzene	ND		3.0	0.49
541-73-1	1,3-Dichlorobenzene	ND		2.0	0.18
99-87-6	4-Isopropyltoluene	ND		3.0	0.28
106-46-7	1,4-Dichlorobenzene	ND		4.0	0.98
104-51-8	n-Butylbenzene	ND		3.0	0.44
95-50-1	1,2-Dichlorobenzene	ND		2.0	0.46
96-12-8	1,2-Dibromo-3-Chloropropane	ND		10	1.8
120-82-1	1,2,4-Trichlorobenzene	ND		2.0	0.33
87-61-6	1,2,3-Trichlorobenzene	ND		5.0	0.46
87-68-3	Hexachlorobutadiene	ND		6.0	0.79
91-20-3	Naphthalene	ND		4.0	0.93
1634-04-4	Methyl tert-butyl ether	ND		2.0	0.44

CAS NO.	SURROGATE	%REC	Q	LIMITS
2037-26-5	Toluene-d8 (Surr)	100		80-122
460-00-4	4-Bromofluorobenzene (Surr)	99		80-125
1868-53-7	Dibromofluoromethane (Surr)	99		77-120
98-08-8	Trifluorotoluene (Surr)	101		80-120
17060-07-0	1,2-Dichloroethane-d4 (Surr)	102		80-126





## ecology and environment, inc.

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### MEMORANDUM

DATE: December 20, 2018

TO: Steve Hall, START-IV Project Manager, E & E, Seattle, Washington

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington *MW*

SUBJ: **Organic Data Quality Assurance Review, May Creek Removal Action Site, Renton, Washington**

REF: TO: TO-68HE0718F0470 PAN: 1004530.0470.001.01

The data quality assurance review of one product sample collected from the May Creek Removal Action site located in Renton, Washington, has been completed. Analyses for Polychlorinated Biphenyls (PCBs - EPA Method 8082) were performed by Test America, Inc., Tacoma, Washington. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Manual Process (S2B/4VM).

The sample was numbered: 18111115

#### Data Qualifications:

**1. Sample Holding Times: Acceptable.**

The sample was received at 20.6°C; there are no recommended temperature limits for concentrated waste samples. The sample was collected on November 27, 2018, extracted on December 10, 2018, and was analyzed by December 17, 2018.

**2. Instrument Performance: Acceptable.**

The surrogate retention time percent difference between the initial calibration standards and the remaining standards and samples was within QC limits.

**3. Initial and Continuing Calibration: Satisfactory.**

All initial calibration relative standard deviations (RSDs) were within QC limits. All continuing calibration % differences (% D) were within QC limits except some high-recovery outliers. No actions were taken based on these outliers as there were no positive field sample results.

**4. Blanks: Acceptable.**

A method blank was prepared at the required frequency of every time samples were extracted for each matrix and for each concentration level, or every 20 samples, whichever is greater, and for each analytical system. No target analytes were detected in the laboratory blanks.

**5. Performance Evaluation Samples: Not Provided.**



Performance evaluation samples were not provided to the laboratory.

**6. System Monitoring Compounds (SMCs): Acceptable.**

All recoveries of the SMCs were within QC limits.

**7. Blank Spike (BS) and BS Duplicate (BSD) Analyses: Acceptable.**

BS and BSD recoveries were within QC limits.

**8. Duplicates: Acceptable.**

Relative Percent Differences (RPDs) of all spiked analytes were within the required control limits.

**9. Compound Identification: Acceptable.**

All spike results were dual-column confirmed with differences between the columns less than 25%.

**10. Target Compound Quantitation and Quantitation Limits: Acceptable.**

Sample results and quantitation limits were correctly calculated.

**11. Laboratory Contact**

No laboratory contact was required.

**12. Overall Assessment**

A total of seven results were validated in this data memorandum. No sample results were qualified as estimated quantities (J) based on duplicate precision outliers, spike accuracy outliers, holding time outliers, incorrect sample containers, or sample temperature outliers. No sample results were rejected (R).

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the analytical method(s), the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, and/or the Office of Emergency and Remedial Response Publication "National Functional Guidelines for Superfund Organic Methods Data Review, January 2017". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

- J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
- R - The data is rejected and unusable. The analyte may or may not be present in the sample.
- U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.

FORM I  
PCBS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82268-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111115 Lab Sample ID: 580-82268-1  
 Matrix: Waste Lab File ID: 35L121718b013.d  
 Analysis Method: 8082A Date Collected: 11/27/2018 13:50  
 Extraction Method: 3580A Date Extracted: 12/10/2018 18:24  
 Sample wt/vol: 0.232(g) Date Analyzed: 12/17/2018 19:39  
 Con. Extract Vol.: 10(mL) Dilution Factor: 1  
 Injection Volume: 1(uL) GC Column: ZB-CLPest-2 ID: 0.25(mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 291376 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
12674-11-2	PCB-1016	ND		0.86	0.15
11104-28-2	PCB-1221	ND		0.86	0.41
11141-16-5	PCB-1232	ND		0.86	0.20
53469-21-9	PCB-1242	ND		0.86	0.21
12672-29-6	PCB-1248	ND		0.86	0.069
11097-69-1	PCB-1254	ND		0.86	0.34
11096-82-5	PCB-1260	ND		0.86	0.15

CAS NO.	SURROGATE	%REC	Q	LIMITS
2051-24-3	DCB Decachlorobiphenyl	88		54-142
877-09-8	Tetrachloro-m-xylene	90		58-122

*MW 12-20-18*



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### MEMORANDUM

DATE: December 18, 2018

TO: Steve Hall, START-IV Project Manager, E & E, Seattle, Washington

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington 

SUBJ: **Organic Data Quality Assurance Review, May Creek Removal Action Site, Renton, Washington**

REF: TO: TO-68HE0718F0470 PAN: 1004530.0470.001.01

The data quality assurance review of one water and four soil samples collected from the May Creek Removal Action site in Renton, Washington, has been completed. Volatile Organic Compound (VOC) analysis (EPA Method 8260) was performed by Test America, Inc., Tacoma, Washington. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Manual Process (S2B/4VM).

The samples were numbered:

18111105    18111106    18111107    18111108    18111109

#### Data Qualifications:

##### 1. Sample Holding Times: Acceptable.

The samples were received at 8.8°C, above the QC limits of 4°C ± 2°C. The samples were maintained on ice after sample collection until receipt at the laboratory as much as possible. The samples were hand-delivered to the laboratory (located approximately 25 miles from the packaging location) immediately after packaging, so it's likely that the ice in the cooler did not have enough time to fully cool the samples. No actions were taken based on this information. The samples were collected on November 27, 2018, were received at the laboratory on November 28, 2018, and were analyzed by December 11, 2018, therefore meeting QC criteria of less than 14 days between collection and analysis for soil and preserved water samples.

##### 2. Tuning: Satisfactory.

Tuning was performed at the beginning of each 12-hour analysis sequence. All results were within QC limits except the M/E 176 result of 94.6% vs the QC limits of 95.0% - 101.0% of mass 174. No actions were applied based on this slight outlier that was only associated with sample 18111105 RA.

##### 3. Initial Calibration: Satisfactory.

All average Relative Response Factors (RRFs) were within the QC limits except a low chloroethane RRF; associated positive results were qualified as estimated quantities with a high bias (JH) and sample quantitation limits were rejected (R). All Relative Standard Deviations (RSDs) and/or correlation coefficients were within the QC limits.



**4. Continuing Calibration: Satisfactory.**

All RRFs were within the QC limits except styrene and tetrachloroethene associated with sample 18111109; associated positive results were qualified as estimated quantities with a high bias (JH) and associated sample quantitation limits were rejected (R). All % differences were within the QC limits except dichlorofluoromethane and 1,2-dibromo-3-chloropropane (December 11, 2018; all with low recoveries associated with sample 18111109), chloroethane, naphthalene, and 1,2,3-trichlorobenzene (November 29, 2018; all with low recoveries associated with the soil samples), and 1,2,4-trichlorobenzene with a low recovery associated with sample 18111105 RA. Positive results and sample quantitation limits associated with low recoveries were qualified as estimated quantities with a low bias (JL or UJL) and positive results associated with high recoveries were qualified as estimated quantities with a high bias (JH).

**5. Blanks: Acceptable.**

A method blank was analyzed for each 20 sample batch per matrix. There were no detections in any method blank. There were no detections in the trip blank.

**6. System Monitoring Compounds (SMCs): Acceptable.**

All SMC recoveries were within QC limits.

**7. Blank Spike (BS)/BS Duplicate (BSD) Analysis: Satisfactory.**

BS and BSD analyses were performed per SDG or per matrix per concentration level, whichever was more frequent. All recoveries were within QC limits except a high vinyl chloride result associated with the soil samples and high chloroform and cis-1,2-dichloroethene results associated with the water sample. Positive sample results associated with high recovery outliers were qualified as estimated quantities with a high bias (JH).

**8. Spike Duplicate Analysis: Satisfactory.**

Spike duplicate analyses were performed per SDG or per matrix per concentration level, whichever was more frequent. All spike duplicate results were within QC limits except 1,1-dichloroethene, chloroform, 1,2,3-trichlorobenzene, trichloroethene, and cis-1,2-dichloroethene. No additional actions were taken based on spike duplicate outliers alone.

**9. Internal Standards: Acceptable.**

All internal standards were within  $\pm 30$  seconds of the continuing calibration internal standard retention times. All area counts were within 50 % to 200 % of the continuing calibration area counts.

**10. Performance Evaluation Sample Analysis: Not Provided.**

Performance evaluation samples were not provided to the laboratory.

**11. Overall Assessment of Data for Use**

A total of 300 results were validated in this data memorandum. No sample results were qualified as estimated quantities (J) based on duplicate precision outliers, spike accuracy outliers, holding time outliers, incorrect sample containers, or sample temperature outliers. Seven sample results were rejected (R).

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the analytical method(s), the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, and/or the Office of Emergency and Remedial Response Publication "National Functional Guidelines for Superfund Organic Methods Data Review, January 2017". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

#### Data Qualifiers and Definitions

- H - The sample result is biased high.
- J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
- K - The bias of the sample is not known.
- L - The sample result is biased low.
- N - The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification".
- NJ - The analyte has been "tentatively identified" or "presumptively" as present and the associated numerical value is the estimated concentration in the sample.
- Q - Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.
- R - The data is rejected and unusable. The analyte may or may not be present in the sample.
- U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.



FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82133-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111105 Lab Sample ID: 580-82133-1  
 Matrix: Solid Lab File ID: 112918021.D  
 Analysis Method: 8260C Date Collected: 11/27/2018 12:00  
 Sample wt/vol: 10.38(g) Date Analyzed: 11/29/2018 19:49  
 Soil Aliquot Vol: 1.075 (mL) Dilution Factor: 1  
 Soil Extract Vol.: 10(mL) GC Column: DB-VRX ID: 0.25 (mm)  
 % Moisture: 15.4 Level: (low/med) Medium  
 Analysis Batch No.: 289976 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
630-20-6	1,1,1,2-Tetrachloroethane	ND		53	14
71-55-6	1,1,1-Trichloroethane	ND		53	13
79-34-5	1,1,2,2-Tetrachloroethane	ND		26	10
79-00-5	1,1,2-Trichloroethane	ND		26	9.8
75-34-3	1,1-Dichloroethane	ND		53	5.5
75-35-4	1,1-Dichloroethene	ND		53	16
563-58-6	1,1-Dichloropropene	ND		53	7.0
87-61-6	1,2,3-Trichlorobenzene	ND		200	42
96-18-4	1,2,3-Trichloropropane	ND		53	15
95-63-6	1,2,4-Trimethylbenzene	ND		53	18
96-12-8	1,2-Dibromo-3-Chloropropane	ND		330	52
106-93-4	1,2-Dibromoethane	ND		26	5.0
95-50-1	1,2-Dichlorobenzene	ND		53	11
107-06-2	1,2-Dichloroethane	ND		26	7.3
78-87-5	1,2-Dichloropropane	ND		26	8.7
108-67-8	1,3,5-Trimethylbenzene	ND		53	10
541-73-1	1,3-Dichlorobenzene	ND		79	18
142-28-9	1,3-Dichloropropane	ND		79	18
106-46-7	1,4-Dichlorobenzene	ND		79	14
594-20-7	2,2-Dichloropropane	ND		53	16
95-49-8	2-Chlorotoluene	ND		53	12
106-43-4	4-Chlorotoluene	ND		53	13
99-87-6	4-Isopropyltoluene	ND		53	13
71-43-2	Benzene	ND		40	10
108-86-1	Bromobenzene	ND		130	23
74-97-5	Bromochloromethane	ND		53	8.2
75-27-4	Bromodichloromethane	ND		79	18
75-25-2	Bromoform	ND		260	35
74-83-9	Bromomethane	ND		260	18
56-23-5	Carbon tetrachloride	ND		26	5.0
108-90-7	Chlorobenzene	ND		53	13
75-00-3	Chloroethane	ND		53	71
67-66-3	Chloroform	ND		53	5.5
74-87-3	Chloromethane	ND		130	13
156-59-2	cis-1,2-Dichloroethene	ND		79	17
10061-01-5	cis-1,3-Dichloropropene	ND		26	5.3

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82133-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111105 Lab Sample ID: 580-82133-1  
 Matrix: Solid Lab File ID: 112918021.D  
 Analysis Method: 8260C Date Collected: 11/27/2018 12:00  
 Sample wt/vol: 10.38(g) Date Analyzed: 11/29/2018 19:49  
 Soil Aliquot Vol: 1.075 (mL) Dilution Factor: 1  
 Soil Extract Vol.: 10(mL) GC Column: DB-VRX ID: 0.25(mm)  
 % Moisture: 15.4 Level: (low/med) Medium  
 Analysis Batch No.: 289976 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
124-48-1	Dibromochloromethane	ND		53	15
74-95-3	Dibromomethane	ND		79	9.8
75-71-8	Dichlorodifluoromethane	ND		260	61
100-41-4	Ethylbenzene	13	JQ	53	12
87-68-3	Hexachlorobutadiene	ND		200	44
98-82-8	Isopropylbenzene	ND		53	11
1634-04-4	Methyl tert-butyl ether	ND		53	7.9
75-09-2	Methylene Chloride	ND		330	85
179601-23-1	m-Xylene & p-Xylene	ND		260	20
91-20-3	Naphthalene	ND		130	37
104-51-8	n-Butylbenzene	ND		200	33
103-65-1	N-Propylbenzene	ND		53	9.1
95-47-6	o-Xylene	ND		79	18
135-98-8	sec-Butylbenzene	ND		53	11
100-42-5	Styrene	ND		53	8.1
98-06-6	t-Butylbenzene	ND		53	10
127-18-4	Tetrachloroethene	ND		53	7.0
108-88-3	Toluene	ND		200	18
156-60-5	trans-1,2-Dichloroethene	ND		79	19
10061-02-6	trans-1,3-Dichloropropene	ND		53	9.2
79-01-6	Trichloroethene	ND		79	29
75-69-4	Trichlorofluoromethane	ND		260	15
75-01-4	Vinyl chloride	ND		200	35

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	103		80-121
460-00-4	4-Bromofluorobenzene (Surr)	102		80-120
1868-53-7	Dibromofluoromethane (Surr)	100		80-120
2037-26-5	Toluene-d8 (Surr)	100		80-120
98-08-8	Trifluorotoluene (Surr)	100		80-120

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82133-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111105 RA Lab Sample ID: 580-82133-1 RA  
 Matrix: Solid Lab File ID: 120318012.D  
 Analysis Method: 8260C Date Collected: 11/27/2018 12:00  
 Sample wt/vol: 10.38(g) Date Analyzed: 12/03/2018 13:37  
 Soil Aliquot Vol: 1.075 (mL) Dilution Factor: 1  
 Soil Extract Vol.: 10 (mL) GC Column: DB-VRX ID: 0.25 (mm)  
 % Moisture: 15.4 Level: (low/med) Medium  
 Analysis Batch No.: 290155 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
120-82-1	1,2,4-Trichlorobenzene	<del>ND</del>		79	20

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	103		80-121
460-00-4	4-Bromofluorobenzene (Surr)	103		80-120
1868-53-7	Dibromofluoromethane (Surr)	102		80-120
2037-26-5	Toluene-d8 (Surr)	98		80-120
98-08-8	Trifluorotoluene (Surr)	102		80-120



FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82133-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111106 Lab Sample ID: 580-82133-2  
 Matrix: Solid Lab File ID: 112918022.D  
 Analysis Method: 8260C Date Collected: 11/27/2018 12:00  
 Sample wt/vol: 9.29(g) Date Analyzed: 11/29/2018 20:14  
 Soil Aliquot Vol: 1.075 (mL) Dilution Factor: 1  
 Soil Extract Vol.: 10(mL) GC Column: DB-VRX ID: 0.25 (mm)  
 % Moisture: 24.6 Level: (low/med) Medium  
 Analysis Batch No.: 289976 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
630-20-6	1,1,1,2-Tetrachloroethane	ND		70	19
71-55-6	1,1,1-Trichloroethane	ND		70	17
79-34-5	1,1,2,2-Tetrachloroethane	ND		35	13
79-00-5	1,1,2-Trichloroethane	ND		35	13
75-34-3	1,1-Dichloroethane	ND		70	7.4
75-35-4	1,1-Dichloroethene	ND		70	22
563-58-6	1,1-Dichloropropene	ND		70	9.3
87-61-6	1,2,3-Trichlorobenzene	ND		260	56
96-18-4	1,2,3-Trichloropropane	ND		70	20
120-82-1	1,2,4-Trichlorobenzene	ND		110	27
95-63-6	1,2,4-Trimethylbenzene	ND		70	24
96-12-8	1,2-Dibromo-3-Chloropropane	ND		440	70
106-93-4	1,2-Dibromoethane	ND		35	6.7
95-50-1	1,2-Dichlorobenzene	ND		70	15
107-06-2	1,2-Dichloroethane	ND		35	9.6
78-87-5	1,2-Dichloropropane	ND		35	12
108-67-8	1,3,5-Trimethylbenzene	ND		70	13
541-73-1	1,3-Dichlorobenzene	ND		110	23
142-28-9	1,3-Dichloropropane	ND		110	24
106-46-7	1,4-Dichlorobenzene	ND		110	19
594-20-7	2,2-Dichloropropane	ND		70	21
95-49-8	2-Chlorotoluene	ND		70	15
106-43-4	4-Chlorotoluene	ND		70	17
99-87-6	4-Isopropyltoluene	ND		70	18
71-43-2	Benzene	ND		53	13
108-86-1	Bromobenzene	ND		180	30
74-97-5	Bromochloromethane	ND		70	11
75-27-4	Bromodichloromethane	ND		110	23
75-25-2	Bromoform	ND		350	46
74-83-9	Bromomethane	ND		350	23
56-23-5	Carbon tetrachloride	ND		35	6.7
108-90-7	Chlorobenzene	ND		70	17
75-00-3	Chloroethane	ND		70	95
67-66-3	Chloroform	ND		70	7.4
74-87-3	Chloromethane	ND		180	18
156-59-2	cis-1,2-Dichloroethene	ND		110	22

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82133-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111106 Lab Sample ID: 580-82133-2  
 Matrix: Solid Lab File ID: 112918022.D  
 Analysis Method: 8260C Date Collected: 11/27/2018 12:00  
 Sample wt/vol: 9.29(g) Date Analyzed: 11/29/2018 20:14  
 Soil Aliquot Vol: 1.075 (mL) Dilution Factor: 1  
 Soil Extract Vol.: 10(mL) GC Column: DB-VRX ID: 0.25 (mm)  
 % Moisture: 24.6 Level: (low/med) Medium  
 Analysis Batch No.: 289976 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
10061-01-5	cis-1,3-Dichloropropene	ND		35	7.0
124-48-1	Dibromochloromethane	ND		70	20
74-95-3	Dibromomethane	ND		110	13
75-71-8	Dichlorodifluoromethane	ND		350	80
100-41-4	Ethylbenzene	ND		70	16
87-68-3	Hexachlorobutadiene	ND		260	59
98-82-8	Isopropylbenzene	ND		70	15
1634-04-4	Methyl tert-butyl ether	ND		70	11
75-09-2	Methylene Chloride	ND		440	110
179601-23-1	m-Xylene & p-Xylene	ND		350	26
91-20-3	Naphthalene	ND		180	50
104-51-8	n-Butylbenzene	ND		260	44
103-65-1	N-Propylbenzene	ND		70	12
95-47-6	o-Xylene	ND		110	23
135-98-8	sec-Butylbenzene	ND		70	15
100-42-5	Styrene	ND		70	11
98-06-6	t-Butylbenzene	ND		70	13
127-18-4	Tetrachloroethene	ND		70	9.3
108-88-3	Toluene	ND		260	24
156-60-5	trans-1,2-Dichloroethene	ND		110	26
10061-02-6	trans-1,3-Dichloropropene	ND		70	12
79-01-6	Trichloroethene	ND		110	39
75-69-4	Trichlorofluoromethane	ND		350	20
75-01-4	Vinyl chloride	ND		260	46

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	101		80-121
460-00-4	4-Bromofluorobenzene (Surr)	100		80-120
1868-53-7	Dibromofluoromethane (Surr)	101		80-120
2037-26-5	Toluene-d8 (Surr)	97		80-120
98-08-8	Trifluorotoluene (Surr)	102		80-120



FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle

Job No.: 580-82133-1

SDG No.: \_\_\_\_\_

Client Sample ID: 18111107

Lab Sample ID: 580-82133-3

Matrix: Solid

Lab File ID: 112918023.D

Analysis Method: 8260C

Date Collected: 11/27/2018 12:00

Sample wt/vol: 10.95(g)

Date Analyzed: 11/29/2018 20:39

Soil Aliquot Vol: 1.075 (mL)

Dilution Factor: 1

Soil Extract Vol.: 10(mL)

GC Column: DB-VRX ID: 0.25(mm)

% Moisture: 21.3

Level: (low/med) Medium

Analysis Batch No.: 289976

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
630-20-6	1,1,1,2-Tetrachloroethane	ND		57	15
71-55-6	1,1,1-Trichloroethane	ND		57	14
79-34-5	1,1,2,2-Tetrachloroethane	ND		29	11
79-00-5	1,1,2-Trichloroethane	ND		29	11
75-34-3	1,1-Dichloroethane	ND		57	6.0
75-35-4	1,1-Dichloroethene	ND		57	18
563-58-6	1,1-Dichloropropene	ND		57	7.6
87-61-6	1,2,3-Trichlorobenzene	ND		210	46
96-18-4	1,2,3-Trichloropropane	ND		57	16
120-82-1	1,2,4-Trichlorobenzene	ND		86	22
95-63-6	1,2,4-Trimethylbenzene	ND		57	19
96-12-8	1,2-Dibromo-3-Chloropropane	ND		360	57
106-93-4	1,2-Dibromoethane	ND		29	5.4
95-50-1	1,2-Dichlorobenzene	ND		57	12
107-06-2	1,2-Dichloroethane	ND		29	7.9
78-87-5	1,2-Dichloropropane	ND		29	9.5
108-67-8	1,3,5-Trimethylbenzene	ND		57	11
541-73-1	1,3-Dichlorobenzene	ND		86	19
142-28-9	1,3-Dichloropropane	ND		86	20
106-46-7	1,4-Dichlorobenzene	ND		86	15
594-20-7	2,2-Dichloropropane	ND		57	17
95-49-8	2-Chlorotoluene	ND		57	13
106-43-4	4-Chlorotoluene	ND		57	14
99-87-6	4-Isopropyltoluene	22	JQ	57	15
71-43-2	Benzene	ND		43	11
108-86-1	Bromobenzene	ND		140	24
74-97-5	Bromochloromethane	ND		57	18.9
75-27-4	Bromodichloromethane	ND		86	19
75-25-2	Bromoform	ND		290	38
74-83-9	Bromomethane	ND		290	19
56-23-5	Carbon tetrachloride	ND		29	5.4
108-90-7	Chlorobenzene	ND		57	14
75-00-3	Chloroethane	ND		57	77
67-66-3	Chloroform	ND		57	6.0
74-87-3	Chloromethane	ND		140	14
156-59-2	cis-1,2-Dichloroethene	ND		86	18

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82133-1

SDG No.: \_\_\_\_\_

Client Sample ID: 18111107 Lab Sample ID: 580-82133-3

Matrix: Solid Lab File ID: 112918023.D

Analysis Method: 8260C Date Collected: 11/27/2018 12:00

Sample wt/vol: 10.95(g) Date Analyzed: 11/29/2018 20:39

Soil Aliquot Vol: 1.075 (mL) Dilution Factor: 1

Soil Extract Vol.: 10(mL) GC Column: DB-VRX ID: 0.25(mm)

% Moisture: 21.3 Level: (low/med) Medium

Analysis Batch No.: 289976 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
10061-01-5	cis-1,3-Dichloropropene	ND		290	5.7
124-48-1	Dibromochloromethane	ND		57	16
74-95-3	Dibromomethane	ND		86	11
75-71-8	Dichlorodifluoromethane	ND		290	66
100-41-4	Ethylbenzene	ND		57	13
87-68-3	Hexachlorobutadiene	ND		210	48
98-82-8	Isopropylbenzene	ND		57	12
1634-04-4	Methyl tert-butyl ether	ND		57	8.6
75-09-2	Methylene Chloride	ND		360	93
179601-23-1	m-Xylene & p-Xylene	ND		290	21
91-20-3	Naphthalene	ND		140	41
104-51-8	n-Butylbenzene	ND		210	36
103-65-1	N-Propylbenzene	ND		57	9.9
95-47-6	o-Xylene	ND		86	19
135-98-8	sec-Butylbenzene	ND		57	12
100-42-5	Styrene	ND		57	8.7
98-06-6	t-Butylbenzene	ND		57	11
127-18-4	Tetrachloroethene	ND		57	7.6
108-88-3	Toluene	ND		210	19
156-60-5	trans-1,2-Dichloroethene	ND		86	21
10061-02-6	trans-1,3-Dichloropropene	ND		57	10
79-01-6	Trichloroethene	ND		86	32
75-69-4	Trichlorofluoromethane	ND		290	16
75-01-4	Vinyl chloride	ND		210	38

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	102		80-121
460-00-4	4-Bromofluorobenzene (Surr)	103		80-120
1868-53-7	Dibromofluoromethane (Surr)	102		80-120
2037-26-5	Toluene-d8 (Surr)	100		80-120
98-08-8	Trifluorotoluene (Surr)	102		80-120

*MW 12-18-18*

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82133-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111108 Lab Sample ID: 580-82133-4  
 Matrix: Solid Lab File ID: 112918024.D  
 Analysis Method: 8260C Date Collected: 11/27/2018 12:00  
 Sample wt/vol: 10.27(g) Date Analyzed: 11/29/2018 21:04  
 Soil Aliquot Vol: 1.075 (mL) Dilution Factor: 1  
 Soil Extract Vol.: 10(mL) GC Column: DB-VRX ID: 0.25 (mm)  
 % Moisture: 21.5 Level: (low/med) Medium  
 Analysis Batch No.: 289976 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
630-20-6	1,1,1,2-Tetrachloroethane	ND		61	16
71-55-6	1,1,1-Trichloroethane	ND		61	15
79-34-5	1,1,2,2-Tetrachloroethane	ND		30	12
79-00-5	1,1,2-Trichloroethane	ND		30	11
75-34-3	1,1-Dichloroethane	ND		61	6.4
75-35-4	1,1-Dichloroethene	ND		61	19
563-58-6	1,1-Dichloropropene	ND		61	8.0
87-61-6	1,2,3-Trichlorobenzene	ND		230	49
96-18-4	1,2,3-Trichloropropane	ND		61	17
120-82-1	1,2,4-Trichlorobenzene	ND		91	23
95-63-6	1,2,4-Trimethylbenzene	ND		61	20
96-12-8	1,2-Dibromo-3-Chloropropane	ND		380	60
106-93-4	1,2-Dibromoethane	ND		30	5.8
95-50-1	1,2-Dichlorobenzene	ND		61	13
107-06-2	1,2-Dichloroethane	ND		30	8.3
78-87-5	1,2-Dichloropropane	ND		30	10
108-67-8	1,3,5-Trimethylbenzene	ND		61	12
541-73-1	1,3-Dichlorobenzene	ND		91	20
142-28-9	1,3-Dichloropropane	ND		91	21
106-46-7	1,4-Dichlorobenzene	ND		91	16
594-20-7	2,2-Dichloropropane	ND		61	18
95-49-8	2-Chlorotoluene	ND		61	13
106-43-4	4-Chlorotoluene	ND		61	15
99-87-6	4-Isopropyltoluene	ND		61	15
71-43-2	Benzene	ND		45	12
108-86-1	Bromobenzene	ND		150	26
74-97-5	Bromochloromethane	ND		61	9.4
75-27-4	Bromodichloromethane	ND		91	20
75-25-2	Bromoform	ND		300	40
74-83-9	Bromomethane	ND		300	20
56-23-5	Carbon tetrachloride	ND		30	5.8
108-90-7	Chlorobenzene	ND		61	15
75-00-3	Chloroethane	ND		61	82
67-66-3	Chloroform	ND		61	6.4
74-87-3	Chloromethane	ND		150	15
156-59-2	cis-1,2-Dichloroethene	ND		91	19

*mw*  
*12/18/18*  
 12/12/2018

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82133-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111108 Lab Sample ID: 580-82133-4  
 Matrix: Solid Lab File ID: 112918024.D  
 Analysis Method: 8260C Date Collected: 11/27/2018 12:00  
 Sample wt/vol: 10.27(g) Date Analyzed: 11/29/2018 21:04  
 Soil Aliquot Vol: 1.075 (mL) Dilution Factor: 1  
 Soil Extract Vol.: 10(mL) GC Column: DB-VRX ID: 0.25 (mm)  
 % Moisture: 21.5 Level: (low/med) Medium  
 Analysis Batch No.: 289976 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
10061-01-5	cis-1,3-Dichloropropene	ND		30	6.1
124-48-1	Dibromochloromethane	ND		61	17
74-95-3	Dibromomethane	ND		91	11
75-71-8	Dichlorodifluoromethane	ND		300	70
100-41-4	Ethylbenzene	ND		61	14
87-68-3	Hexachlorobutadiene	ND		230	51
98-82-8	Isopropylbenzene	ND		61	13
1634-04-4	Methyl tert-butyl ether	ND		61	9.1
75-09-2	Methylene Chloride	ND		380	98
179601-23-1	m-Xylene & p-Xylene	ND		300	23
91-20-3	Naphthalene	ND		150	43
104-51-8	n-Butylbenzene	ND		230	38
103-65-1	N-Propylbenzene	ND		61	10
95-47-6	o-Xylene	ND		91	20
135-98-8	sec-Butylbenzene	ND		61	13
100-42-5	Styrene	ND		61	9.2
98-06-6	t-Butylbenzene	ND		61	12
127-18-4	Tetrachloroethene	ND		61	8.0
108-88-3	Toluene	ND		230	20
156-60-5	trans-1,2-Dichloroethene	ND		91	22
10061-02-6	trans-1,3-Dichloropropene	ND		61	11
79-01-6	Trichloroethene	ND		91	33
75-69-4	Trichlorofluoromethane	ND		300	17
75-01-4	Vinyl chloride	ND		230	40

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	105		80-121
460-00-4	4-Bromofluorobenzene (Surr)	107		80-120
1868-53-7	Dibromofluoromethane (Surr)	101		80-120
2037-26-5	Toluene-d8 (Surr)	97		80-120
98-08-8	Trifluorotoluene (Surr)	101		80-120

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle

Job No.: 580-82133-1

SDG No.: \_\_\_\_\_

Client Sample ID: 18111109

Lab Sample ID: 580-82133-5

Matrix: Water

Lab File ID: 12111810.D

Analysis Method: 8260C

Date Collected: 11/27/2018 12:00

Sample wt/vol: 5(mL)

Date Analyzed: 12/11/2018 15:50

Soil Aliquot Vol: \_\_\_\_\_

Dilution Factor: 1

Soil Extract Vol.: \_\_\_\_\_

GC Column: DB-VRX ID: 0.25(mm)

% Moisture: \_\_\_\_\_

Level: (low/med) Low

Analysis Batch No.: 290787

Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-71-8	Dichlorodifluoromethane	ND		10	2.3
74-87-3	Chloromethane	ND		20	5.4
75-01-4	Vinyl chloride	ND		1.0	0.22
74-83-9	Bromomethane	ND		6.0	1.1
75-00-3	Chloroethane	ND		5.0	1.1
75-69-4	Trichlorofluoromethane	ND		3.0	0.63
75-35-4	1,1-Dichloroethene	ND		4.0	0.78
75-09-2	Methylene Chloride	ND		5.0	1.4
156-60-5	trans-1,2-Dichloroethene	ND		3.0	0.39
75-34-3	1,1-Dichloroethane	ND		2.0	0.22
594-20-7	2,2-Dichloropropane	ND		3.0	0.32
156-59-2	cis-1,2-Dichloroethene	ND	*	3.0	0.69
74-97-5	Bromochloromethane	ND		2.0	0.29
67-66-3	Chloroform	ND		5.0	0.50
71-55-6	1,1,1-Trichloroethane	ND		3.0	0.14
56-23-5	Carbon tetrachloride	ND		3.0	0.30
563-58-6	1,1-Dichloropropene	ND		3.0	0.29
71-43-2	Benzene	ND		3.0	0.53
107-06-2	1,2-Dichloroethane	ND		2.0	0.53
79-01-6	Trichloroethene	ND	*	3.0	0.85
78-87-5	1,2-Dichloropropane	ND	W	1.0	0.18
74-95-3	Dibromomethane	ND		2.0	0.34
75-27-4	Bromodichloromethane	ND		2.0	0.14
10061-01-5	cis-1,3-Dichloropropene	ND		1.0	0.20
108-88-3	Toluene	ND		2.0	0.39
10061-02-6	trans-1,3-Dichloropropene	ND		1.0	0.16
79-00-5	1,1,2-Trichloroethane	ND		1.0	0.24
127-18-4	Tetrachloroethene	ND		3.0	0.41
142-28-9	1,3-Dichloropropane	ND		2.0	0.35
124-48-1	Dibromochloromethane	ND		1.0	0.20
106-93-4	1,2-Dibromoethane	ND		2.0	0.40
108-90-7	Chlorobenzene	ND		2.0	0.44
100-41-4	Ethylbenzene	ND		3.0	0.50
630-20-6	1,1,1,2-Tetrachloroethane	ND		2.0	0.18
79-34-5	1,1,2,2-Tetrachloroethane	ND		3.0	0.52
179601-23-1	m-Xylene & p-Xylene	ND		3.0	0.75

FORM I 8260C

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82133-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111109 Lab Sample ID: 580-82133-5  
 Matrix: Water Lab File ID: 12111810.D  
 Analysis Method: 8260C Date Collected: 11/27/2018 12:00  
 Sample wt/vol: 5 (mL) Date Analyzed: 12/11/2018 15:50  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: DB-VRX ID: 0.25 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 290787 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
95-47-6	o-Xylene	ND		2.0	0.15
100-42-5	Styrene	ND		5.0	0.51
75-25-2	Bromoform	ND		3.0	0.56
98-82-8	Isopropylbenzene	ND		2.0	0.51
108-86-1	Bromobenzene	ND		2.0	0.18
103-65-1	N-Propylbenzene	ND		3.0	0.50
96-18-4	1,2,3-Trichloropropane	ND		2.0	0.41
95-49-8	2-Chlorotoluene	ND		3.0	0.51
108-67-8	1,3,5-Trimethylbenzene	ND		3.0	0.55
106-43-4	4-Chlorotoluene	ND		2.0	0.51
98-06-6	t-Butylbenzene	ND		3.0	0.58
95-63-6	1,2,4-Trimethylbenzene	ND		3.0	0.61
135-98-8	sec-Butylbenzene	ND		3.0	0.49
541-73-1	1,3-Dichlorobenzene	ND		2.0	0.18
99-87-6	4-Isopropyltoluene	ND		3.0	0.28
106-46-7	1,4-Dichlorobenzene	ND		4.0	0.98
104-51-8	n-Butylbenzene	ND		3.0	0.44
95-50-1	1,2-Dichlorobenzene	ND		2.0	0.46
96-12-8	1,2-Dibromo-3-Chloropropane	ND		10	1.8
120-82-1	1,2,4-Trichlorobenzene	ND		2.0	0.33
87-61-6	1,2,3-Trichlorobenzene	ND		5.0	0.46
87-68-3	Hexachlorobutadiene	ND		6.0	0.79
91-20-3	Naphthalene	ND		4.0	0.93
1634-04-4	Methyl tert-butyl ether	ND		2.0	0.44

CAS NO.	SURROGATE	%REC	Q	LIMITS
2037-26-5	Toluene-d8 (Surr)	104		80-122
460-00-4	4-Bromofluorobenzene (Surr)	98		80-125
1868-53-7	Dibromofluoromethane (Surr)	105		77-120
98-08-8	Trifluorotoluene (Surr)	98		80-120
17060-07-0	1,2-Dichloroethane-d4 (Surr)	99		80-126





## ecology and environment, inc.

Global Environmental Specialists

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### MEMORANDUM

DATE: December 18, 2018

TO: Steve Hall, START-IV Project Manager, E & E, Seattle, Washington

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington *MW*

SUBJ: **Organic Data Quality Assurance Review, May Creek Removal Action Site, Renton, Washington**

REF: TO: TO-68HE0718F0470 PAN: 1004530.0470.001.01

The data quality assurance review of four soil samples collected from the May Creek Removal Action site located in Renton, Washington, has been completed. Hydrocarbon Identification analysis (Ecology Method NWTPH-HCID) was performed by Test America, Inc., Tacoma, Washington. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Manual Process (S2B/4VM).

The samples were numbered:

18111105      18111106      18111107      18111108

#### Data Qualifications:

##### **1. Sample Holding Times: Satisfactory.**

The samples were received at 8.8°C, above the QC limits of 4°C ± 2°C. The samples were maintained on ice after sample collection until receipt at the laboratory as much as possible. The samples were hand-delivered to the laboratory (located approximately 25 miles from the packaging location) immediately after packaging, so it's likely that the ice in the cooler did not have enough time to fully cool the samples. No actions were taken based on this information. The samples were collected on November 27, 2018, extracted on November 28, 2018, and analyzed by November 30, 2018, therefore meeting QC criteria of less than 14 days between collection and extraction for soil samples and less than 40 days between extraction and analysis.

##### **2. Calibration: Acceptable.**

Calculations were verified as correct.

##### **3. Blanks: Acceptable.**

A method blank was analyzed for each extraction batch for each matrix and analysis system. TPHs were not detected in the method blank.

**4. System Monitoring Compounds (SMC): Acceptable.**

All recoveries of the SMCs were within QC limits.

**5. Performance Evaluation Samples: Not Provided.**

Performance evaluation samples were not provided to the laboratory.

**6. Duplicates: Acceptable.**

All duplicate results were within QC limits.

**7. Quantitation and Quantitation Limits: Acceptable.**

Sample concentrations were correctly calculated.

**8. Laboratory Contact: Not Required.**

No laboratory contact was required.

**9. Overall Assessment of Data for Use**

A total of 12 results were validated in this data memorandum. No sample results were qualified as estimated quantities (J) based on duplicate precision outliers, holding time outliers, incorrect sample containers, or sample temperature outliers. No sample results were rejected (R).

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the analytical method(s), the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, and/or the Office of Emergency and Remedial Response Publication "National Functional Guidelines for Superfund Organic Methods Data Review, January 2017". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

- J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
- Q - Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.
- R - The data is rejected and unusable. The analyte may or may not be present in the sample.
- U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.

FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82133-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111105 Lab Sample ID: 580-82133-1  
 Matrix: Solid Lab File ID: 113018a008.D  
 Analysis Method: NWTPH-HCID Date Collected: 11/27/2018 12:00  
 Extraction Method: 3546 Date Extracted: 11/28/2018 16:58  
 Sample wt/vol: 10.628(g) Date Analyzed: 11/30/2018 18:05  
 Con. Extract Vol.: 10(mL) Dilution Factor: 1  
 Injection Volume: 2(uL) GC Column: ZB-1HT ID: 0.25(mm)  
 % Moisture: 15.4 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 290033 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	RL
STL00299	Motor Oil	<del>ND</del>		110	110
STL00228	Gasoline	<del>ND</del>		22	22
STL00096	#2 Diesel (>C12-C24)	<del>ND</del>		56	56

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	81		50-150
460-00-4	4-Bromofluorobenzene (Surr)	84		50-150

*mw 12/18/18*

FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82133-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111106 Lab Sample ID: 580-82133-2  
 Matrix: Solid Lab File ID: 113018a009.D  
 Analysis Method: NWTPH-HCID Date Collected: 11/27/2018 12:00  
 Extraction Method: 3546 Date Extracted: 11/28/2018 16:58  
 Sample wt/vol: 10.210(g) Date Analyzed: 11/30/2018 18:25  
 Con. Extract Vol.: 10(mL) Dilution Factor: 1  
 Injection Volume: 2(uL) GC Column: ZB-1HT ID: 0.25(mm)  
 % Moisture: 24.6 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 290033 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	RL
STL00299	Motor Oil	<del>ND</del> <i>mw</i>		130 <i>U</i>	130
STL00228	Gasoline	39		26	26
STL00096	#2 Diesel (>C12-C24)	<del>ND</del> <i>mw</i>		65 <i>U</i>	65

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	79		50-150
460-00-4	4-Bromofluorobenzene (Surr)	78		50-150

*mw 12-18-18*

FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82133-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111107 Lab Sample ID: 580-82133-3  
 Matrix: Solid Lab File ID: 113018a011.D  
 Analysis Method: NWTPH-HCID Date Collected: 11/27/2018 12:00  
 Extraction Method: 3546 Date Extracted: 11/28/2018 16:58  
 Sample wt/vol: 10.513(g) Date Analyzed: 11/30/2018 19:05  
 Con. Extract Vol.: 10(mL) Dilution Factor: 1  
 Injection Volume: 2(uL) GC Column: ZB-1HT ID: 0.25(mm)  
 % Moisture: 21.3 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 290033 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	RL
STL00299	Motor Oil	ND		120	120
STL00228	Gasoline	ND		24	24
STL00096	#2 Diesel (>C12-C24)	ND		60	60

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	77		50-150
460-00-4	4-Bromofluorobenzene (Surr)	80		50-150

FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82133-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111108 Lab Sample ID: 580-82133-4  
 Matrix: Solid Lab File ID: 113018a012.D  
 Analysis Method: NWTPH-HCID Date Collected: 11/27/2018 12:00  
 Extraction Method: 3546 Date Extracted: 11/28/2018 16:58  
 Sample wt/vol: 10.012(g) Date Analyzed: 11/30/2018 19:26  
 Con. Extract Vol.: 10(mL) Dilution Factor: 1  
 Injection Volume: 2(uL) GC Column: ZB-1HT ID: 0.25(mm)  
 % Moisture: 21.5 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 290033 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	RL
STL00299	Motor Oil	ND		130	130
STL00228	Gasoline	ND		25	25
STL00096	#2 Diesel (>C12-C24)	ND		64	64

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	82		50-150
460-00-4	4-Bromofluorobenzene (Surr)	85		50-150

*MW 12-18-18*





## ecology and environment, inc.

Global Environmental Specialists

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### MEMORANDUM

DATE: January 7, 2019

TO: Steve Hall, START-IV Project Manager, E & E, Seattle, Washington

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington *MW*

SUBJ: **Organic Data Quality Assurance Review, May Creek Removal Action Site, Renton, Washington**

REF: TO: TO-68HE0718F0470 PAN: 1004530.0470.001.01

The data quality assurance review of one product sample collected from the May Creek Removal Action site located in Renton, Washington, has been completed. Hydrocarbon Identification analysis (Ecology Method NWTPH-HCID) was performed by Test America, Inc., Tacoma, Washington. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Manual Process (S2B/4VM).

The sample was numbered: 18110002

#### Data Qualifications:

##### **1. Sample Holding Times: Satisfactory.**

The sample was received at 8.9°C, above the QC limits of 4°C  $\pm$  2°C. The sample was maintained on ice after sample collection until receipt at the laboratory as much as possible. The samples were hand-delivered to the laboratory (located approximately 25 miles from the packaging location) immediately after packaging, so it's likely that the ice in the cooler did not have enough time to fully cool the samples. No actions were taken based on this information. The sample was collected on December 11, 2018, extracted on December 18, 2018, and analyzed by December 19, 2018, therefore meeting QC criteria of less than 14 days between collection and extraction for soil samples and less than 40 days between extraction and analysis. Soil criteria were used in the absence of product criteria.

##### **2. Calibration: Acceptable.**

Calculations were verified as correct.

##### **3. Blanks: Acceptable.**

A method blank was analyzed for each extraction batch for each matrix and analysis system. TPHs were not detected in the method blank.

##### **4. System Monitoring Compounds (SMC): Acceptable.**

Both recoveries of the SMCs were greater than QC limits in the sample; no actions were taken as

the laboratory indicated that there was evidence of matrix interference.

**5. Performance Evaluation Samples: Not Provided.**

Performance evaluation samples were not provided to the laboratory.

**6. Quantitation and Quantitation Limits: Acceptable.**

Sample concentrations were correctly calculated.

**7. Laboratory Contact: Not Required.**

No laboratory contact was required.

**8. Overall Assessment of Data for Use**

A total of 3 results were validated in this data memorandum. No sample results were qualified as estimated quantities (J) based on holding time outliers, incorrect sample containers, or sample temperature outliers. No sample results were rejected (R).

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the analytical method(s), the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, and/or the Office of Emergency and Remedial Response Publication "National Functional Guidelines for Superfund Organic Methods Data Review, January 2017". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

- J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
- Q - Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.
- R - The data is rejected and unusable. The analyte may or may not be present in the sample.
- U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.

FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82542-2  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18110002 Lab Sample ID: 580-82542-2  
 Matrix: Waste Lab File ID: 080B3001.D  
 Analysis Method: NWTPH-HCID Date Collected: 12/11/2018 13:20  
 Extraction Method: 3580A Date Extracted: 12/17/2018 18:24  
 Sample wt/vol: 0.109(g) Date Analyzed: 12/19/2018 05:08  
 Con. Extract Vol.: 10(mL) Dilution Factor: 20  
 Injection Volume: 2(uL) GC Column: ZB-1HT ID: 0.25(mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 291503 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	RL
STL00299	Motor Oil	620000		180000	180000
STL00228	Gasoline	82000		37000	37000
STL00096	#2 Diesel (>C12-C24)	270000		92000	92000

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	152	X	50-150
460-00-4	4-Bromofluorobenzene (Surr)	281	X	50-150

*mw*

*mw*  
*1749*



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### MEMORANDUM

DATE: January 7, 2019

TO: Steve Hall, START-IV Project Manager, E & E, Seattle, Washington

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington *MW*

SUBJ: **Organic Data Quality Assurance Review, May Creek Removal Action Site, Renton, Washington**

REF: TO: TO-68HE0718F0470 PAN: 1004530.0470.001.01

The data quality assurance review of one product sample collected from the May Creek Removal Action site located in Renton, Washington, has been completed. Analyses for Polychlorinated Biphenyls (PCBs - EPA Method 8082) were performed by Environmental Monitoring and Technologies, Inc., Morton Grove, Illinois. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Manual Process (S2B/4VM).

The sample was numbered: 18110002

#### Data Qualifications:

##### 1. **Sample Holding Times: Acceptable.**

The sample was received at 8.9°C, above the QC limits of 4°C  $\pm$  2°C. The sample was maintained on ice after sample collection until receipt at the laboratory as much as possible. The sample was hand-delivered to the laboratory (located approximately 25 miles from the packaging location) immediately after packaging, so it's likely that the ice in the cooler did not have enough time to fully cool the sample. No actions were taken based on this information. The sample was collected on December 11, 2018, extracted on December 20, 2018, and was analyzed by December 22, 2018.

##### 2. **Instrument Performance: Acceptable.**

The surrogate retention time percent difference between the initial calibration standards and the remaining standards and samples was  $\leq 0.3\%$  for capillary column analyses.

##### 3. **Initial and Continuing Calibration: Satisfactory.**

All initial calibration relative standard deviations (RSDs) were within QC limits. All continuing calibration % differences (% D) were within QC limits except low PCB-1248 and PCB-1254 results; associated sample quantitation limits were qualified as estimated quantities with a low bias (UJL).

##### 4. **Blanks: Acceptable.**

A method blank was prepared at the required frequency of every time samples were extracted for each matrix and for each concentration level, or every 20 samples, whichever is greater, and for each analytical system. No target analytes were detected in the laboratory blanks.



**5. Performance Evaluation Samples: Not Provided.**

Performance evaluation samples were not provided to the laboratory.

**6. System Monitoring Compounds (SMCs): Satisfactory.**

All recoveries of the SMCs were within QC limits except decachlorobiphenyl and tetrachloro-m-xylene failed the surrogate recovery criteria low. According to the laboratory, evidence of matrix interference was present, therefore no actions were taken.

**7. Blank Spike (BS) and BS Duplicate (BSD) Analyses: Acceptable.**

BS and BSD recoveries were within QC limits.

**8. Duplicates: Acceptable.**

Relative Percent Differences (RPDs) of all spiked analytes were within the required control limits.

**9. Compound Identification: Acceptable.**

All spike results were dual-column confirmed with differences between the columns less than 25%.

**10. Target Compound Quantitation and Quantitation Limits: Acceptable.**

Sample results and quantitation limits were correctly calculated.

**11. Laboratory Contact**

No laboratory contact was required.

**12. Overall Assessment**

A total of seven results were validated in this data memorandum. No sample results were qualified as estimated quantities (J) based on duplicate precision outliers, spike accuracy outliers, holding time outliers, incorrect sample containers, or sample temperature outliers. No sample results were rejected (R).

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the analytical method(s), the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, and/or the Office of Emergency and Remedial Response Publication "National Functional Guidelines for Superfund Organic Methods Data Review, January 2017". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

H - The sample result is biased high.

J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

- K - The bias of the sample is not known.
- L - The sample result is biased low.
- Q - Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.
- R - The data is rejected and unusable. The analyte may or may not be present in the sample.
- U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.



FORM I  
PCBS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82542-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18110002 Lab Sample ID: 580-82542-2  
 Matrix: Waste Lab File ID: 35L12218b024.d  
 Analysis Method: 8082A Date Collected: 12/11/2018 13:20  
 Extraction Method: 3580A Date Extracted: 12/20/2018 18:04  
 Sample wt/vol: 0.203(g) Date Analyzed: 12/22/2018 20:07  
 Con. Extract Vol.: 10(mL) Dilution Factor: 3  
 Injection Volume: 1(uL) GC Column: ZB-CLPest-2 ID: 0.25(mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 291920 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
12674-11-2	PCB-1016	ND		3.0	0.50
11104-28-2	PCB-1221	ND		3.0	1.4
11141-16-5	PCB-1232	ND		3.0	0.69
53469-21-9	PCB-1242	ND		3.0	0.72
12672-29-6	PCB-1248	ND		3.0	0.24
11097-69-1	PCB-1254	ND		3.0	1.2
11096-82-5	PCB-1260	ND		3.0	0.50

CAS NO.	SURROGATE	%REC	Q	LIMITS
2051-24-3	DCB Decachlorobiphenyl	36	X	54-142
877-09-8	Tetrachloro-m-xylene	57	X	58-122

*mw 1-7-19*



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### MEMORANDUM

DATE: December 18, 2018

TO: Steve Hall, START-IV Project Manager, E & E, Seattle, Washington

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington *MW*

SUBJ: **Organic Data Quality Assurance Review, May Creek Removal Action Site, Renton, Washington**

REF: TO: TO-68HE0718F0470 PAN: 1004530.0470.001.01

The data quality assurance review of one water sample and one soil sample collected from the May Creek Removal Action site in Renton, Washington, has been completed. Volatile Organic Compound (VOC) analysis (EPA Method 8260) was performed by Test America, Inc., Tacoma, Washington. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Manual Process (S2B/4VM).

The samples were numbered: 18110001 18110026

#### Data Qualifications:

##### **1. Sample Holding Times: Acceptable.**

The samples were received at 8.9°C, above the QC limits of 4°C  $\pm$  2°C. The samples were maintained on ice after sample collection until receipt at the laboratory as much as possible. The samples were hand-delivered to the laboratory (located approximately 25 miles from the packaging location) immediately after packaging, so it's likely that the ice in the cooler did not have enough time to fully cool the samples. No actions were taken based on this information. The samples were collected on December 11 and 12, 2018, were received at the laboratory on December 12, 2018, and were analyzed by December 14, 2018, therefore meeting QC criteria of less than 14 days between collection and analysis for soil and preserved water samples.

##### **2. Tuning: Acceptable.**

Tuning was performed at the beginning of each 12-hour analysis sequence. All results were within QC limits.

##### **3. Initial Calibration: Satisfactory.**

All average Relative Response Factors (RRFs) were within the QC limits except chloroethane; associated sample quantitation limits were rejected (R). All Relative Standard Deviations (RSDs) and/or correlation coefficients were within the QC limits.

##### **4. Continuing Calibration: Satisfactory.**

All RRFs were within the QC limits except dichlorodifluoromethane, trichloroethene, and bromodichloromethane associated with sample 18110001 and styrene associated with sample 18110026;



associated sample quantitation limits were rejected (R). All % differences were within the QC limits except trichlorofluoromethane with a high recovery associated with sample 18110001, 2,2-dichloropropane with a low recovery associated with sample 18110001, and dichlorodifluoromethane with a low recovery associated with sample 18110026. Positive results and sample quantitation limits associated with low recoveries were qualified as estimated quantities with a low bias (JL or UJL) and positive results associated with high recoveries were qualified as estimated quantities with a high bias (JH).

**5. Blanks: Acceptable.**

A method blank was analyzed for each 20 sample batch per matrix. There were no detections in any method blank. There were no detections in the trip blank.

**6. System Monitoring Compounds (SMCs): Acceptable.**

All SMC recoveries were within QC limits.

**7. Blank Spike (BS)/BS Duplicate (BSD) Analysis: Satisfactory.**

BS and BSD analyses were performed per SDG or per matrix per concentration level, whichever was more frequent. All recoveries were within QC limits except a high trichlorofluoromethane result associated with sample 18110001. Positive sample results associated with high recovery outlier was qualified as an estimated quantity with a high bias (JH).

**8. Spike Duplicate Analysis: Satisfactory.**

Spike duplicate analyses were performed per SDG or per matrix per concentration level, whichever was more frequent. All spike duplicate results were within QC limits except trichlorofluoromethane associated with sample 18110001. No additional actions were taken based on the duplicate outlier alone.

**9. Internal Standards: Acceptable.**

All internal standards were within  $\pm 30$  seconds of the continuing calibration internal standard retention times. All area counts were within 50 % to 200 % of the continuing calibration area counts.

**10. Performance Evaluation Sample Analysis: Not Provided.**

Performance evaluation samples were not provided to the laboratory.

**11. Overall Assessment of Data for Use**

A total of 114 results were validated in this data memorandum. One sample result was qualified as an estimated quantity (J) based on spike outliers. No sample results were qualified as estimated quantities (J) based on duplicate precision outliers, holding time outliers, incorrect sample containers, or sample temperature outliers. Six sample results were rejected (R).

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the analytical method(s), the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, and/or the Office of Emergency and Remedial Response Publication "National Functional Guidelines for Superfund Organic Methods Data Review, January 2017". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

## Data Qualifiers and Definitions

- H - The sample result is biased high.
- J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
- K - The bias of the sample is not known.
- L - The sample result is biased low.
- N - The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification".
- NJ - The analyte has been "tentatively identified" or "presumptively" as present and the associated numerical value is the estimated concentration in the sample.
- Q - Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.
- R - The data is rejected and unusable. The analyte may or may not be present in the sample.
- U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle

Job No.: 580-82542-2

SDG No.: \_\_\_\_\_

Client Sample ID: 18110001

Lab Sample ID: 580-82542-1

Matrix: Solid

Lab File ID: L1318014.D

Analysis Method: 8260C

Date Collected: 12/11/2018 14:20

Sample wt/vol: 10.04(g)

Date Analyzed: 12/14/2018 01:13

Soil Aliquot Vol: 1.075 (mL)

Dilution Factor: 1

Soil Extract Vol.: 10(mL)

GC Column: DB-VRX ID: 0.25 (mm)

% Moisture: 59.2

Level: (low/med) Medium

Analysis Batch No.: 291154

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
630-20-6	1,1,1,2-Tetrachloroethane	ND		160	41
71-55-6	1,1,1-Trichloroethane	ND		160	37
79-34-5	1,1,2,2-Tetrachloroethane	ND		78	30
79-00-5	1,1,2-Trichloroethane	ND		78	29
75-34-3	1,1-Dichloroethane	ND		160	16
75-35-4	1,1-Dichloroethene	63	J Q	160	48
563-58-6	1,1-Dichloropropene	ND		160	21
87-61-6	1,2,3-Trichlorobenzene	ND		580	120
96-18-4	1,2,3-Trichloropropane	ND		160	45
120-82-1	1,2,4-Trichlorobenzene	ND		230	60
95-63-6	1,2,4-Trimethylbenzene	3600		160	53
96-12-8	1,2-Dibromo-3-Chloropropane	ND		970	150
106-93-4	1,2-Dibromoethane	ND		78	15
95-50-1	1,2-Dichlorobenzene	ND		160	34
107-06-2	1,2-Dichloroethane	ND		78	21
78-87-5	1,2-Dichloropropane	ND		78	26
108-67-8	1,3,5-Trimethylbenzene	1100		160	30
541-73-1	1,3-Dichlorobenzene	ND		230	52
142-28-9	1,3-Dichloropropane	ND		230	54
106-46-7	1,4-Dichlorobenzene	ND		230	42
594-20-7	2,2-Dichloropropane	ND		160	47
95-49-8	2-Chlorotoluene	ND		160	34
106-43-4	4-Chlorotoluene	ND		160	38
99-87-6	4-Isopropyltoluene	730		160	40
71-43-2	Benzene	250		120	30
108-86-1	Bromobenzene	ND		390	67
74-97-5	Bromochloromethane	ND		160	24
75-27-4	Bromodichloromethane	ND		230	52
75-25-2	Bromoform	ND		780	100
74-83-9	Bromomethane	ND		780	52
56-23-5	Carbon tetrachloride	ND		78	15
108-90-7	Chlorobenzene	ND		160	38
75-00-3	Chloroethane	ND		1600	210
67-66-3	Chloroform	ND		160	16
74-87-3	Chloromethane	ND		390	39
156-59-2	cis-1,2-Dichloroethene	ND		230	49



FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82542-2  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18110001 Lab Sample ID: 580-82542-1  
 Matrix: Solid Lab File ID: L1318014.D  
 Analysis Method: 8260C Date Collected: 12/11/2018 14:20  
 Sample wt/vol: 10.04(g) Date Analyzed: 12/14/2018 01:13  
 Soil Aliquot Vol: 1.075 (mL) Dilution Factor: 1  
 Soil Extract Vol.: 10(mL) GC Column: DB-VRX ID: 0.25 (mm)  
 % Moisture: 59.2 Level: (low/med) Medium  
 Analysis Batch No.: 291154 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
10061-01-5	cis-1,3-Dichloropropene	ND		78	16
124-48-1	Dibromochloromethane	ND		160	44
74-95-3	Dibromomethane	ND		230	29
75-71-8	Dichlorodifluoromethane	ND		780	180
100-41-4	Ethylbenzene	1300		160	35
87-68-3	Hexachlorobutadiene	ND		580	130
98-82-8	Isopropylbenzene	150	J Q	160	33
1634-04-4	Methyl tert-butyl ether	ND		160	23
75-09-2	Methylene Chloride	ND		970	250
179601-23-1	m-Xylene & p-Xylene	5900		780	58
91-20-3	Naphthalene	2100		390	110
104-51-8	n-Butylbenzene	440	J Q	580	98
103-65-1	N-Propylbenzene	550		160	27
95-47-6	o-Xylene	2200		230	52
135-98-8	sec-Butylbenzene	120	J Q	160	33
100-42-5	Styrene	290		160	24
98-06-6	t-Butylbenzene	ND		160	30
127-18-4	Tetrachloroethene	ND		160	21
108-88-3	Toluene	6200		580	53
156-60-5	trans-1,2-Dichloroethene	ND		230	57
10061-02-6	trans-1,3-Dichloropropene	ND		160	27
79-01-6	Trichloroethene	ND		230	86
75-69-4	Trichlorofluoromethane	3000	JH	780	44

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	100		80-121
460-00-4	4-Bromofluorobenzene (Surr)	101		80-120
1868-53-7	Dibromofluoromethane (Surr)	95		80-120
2037-26-5	Toluene-d8 (Surr)	101		80-120
98-08-8	Trifluorotoluene (Surr)	100		80-120

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82542-2  
SDG No.: \_\_\_\_\_  
Client Sample ID: 18110001 Lab Sample ID: 580-82542-1  
Matrix: Solid Lab File ID: 121218021.D  
Analysis Method: 8260C Date Collected: 12/11/2018 14:20  
Sample wt/vol: 10.04(g) Date Analyzed: 12/12/2018 17:44  
Soil Aliquot Vol: 1.075 (mL) Dilution Factor: 1  
Soil Extract Vol.: 10 (mL) GC Column: DB-VRX ID: 0.25 (mm)  
% Moisture: 59.2 Level: (low/med) Medium  
Analysis Batch No.: 290954 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-01-4	Vinyl chloride	ND		580	100

*MW* 12-18-18



FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82542-2  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111126 Lab Sample ID: 580-82542-3  
 Matrix: Water Lab File ID: 12121818.D  
 Analysis Method: 8260C Date Collected: 12/11/2018 00:00  
 Sample wt/vol: 5(mL) Date Analyzed: 12/12/2018 17:22  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: DB-VRX ID: 0.25(mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 290900 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-71-8	Dichlorodifluoromethane	ND		10	2.3
74-87-3	Chloromethane	ND		20	5.4
75-01-4	Vinyl chloride	ND		1.0	0.22
74-83-9	Bromomethane	ND		6.0	1.1
75-00-3	Chloroethane	ND		5.0	1.1
75-69-4	Trichlorofluoromethane	ND		3.0	0.63
75-35-4	1,1-Dichloroethene	ND		4.0	0.78
75-09-2	Methylene Chloride	ND		5.0	1.4
156-60-5	trans-1,2-Dichloroethene	ND		3.0	0.39
75-34-3	1,1-Dichloroethane	ND		2.0	0.22
594-20-7	2,2-Dichloropropane	ND		3.0	0.32
156-59-2	cis-1,2-Dichloroethene	ND		3.0	0.69
74-97-5	Bromochloromethane	ND		2.0	0.29
67-66-3	Chloroform	ND		5.0	0.50
71-55-6	1,1,1-Trichloroethane	ND		3.0	0.14
56-23-5	Carbon tetrachloride	ND		3.0	0.30
563-58-6	1,1-Dichloropropene	ND		3.0	0.29
71-43-2	Benzene	ND		3.0	0.53
107-06-2	1,2-Dichloroethane	ND		2.0	0.53
79-01-6	Trichloroethene	ND		3.0	0.85
78-87-5	1,2-Dichloropropane	ND		1.0	0.18
74-95-3	Dibromomethane	ND		2.0	0.34
75-27-4	Bromodichloromethane	ND		2.0	0.14
10061-01-5	cis-1,3-Dichloropropene	ND		1.0	0.20
108-88-3	Toluene	ND		2.0	0.39
10061-02-6	trans-1,3-Dichloropropene	ND		1.0	0.16
79-00-5	1,1,2-Trichloroethane	ND		1.0	0.24
127-18-4	Tetrachloroethene	ND		3.0	0.41
142-28-9	1,3-Dichloropropane	ND		2.0	0.35
124-48-1	Dibromochloromethane	ND		1.0	0.20
106-93-4	1,2-Dibromoethane	ND		2.0	0.40
108-90-7	Chlorobenzene	ND		2.0	0.44
100-41-4	Ethylbenzene	ND		3.0	0.50
630-20-6	1,1,1,2-Tetrachloroethane	ND		2.0	0.18
79-34-5	1,1,2,2-Tetrachloroethane	ND		3.0	0.52
179601-23-1	m-Xylene & p-Xylene	ND		3.0	0.75

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82542-2  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111126 Lab Sample ID: 580-82542-3  
 Matrix: Water Lab File ID: 12121818.D  
 Analysis Method: 8260C Date Collected: 12/11/2018 00:00  
 Sample wt/vol: 5(mL) Date Analyzed: 12/12/2018 17:22  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: DB-VRX ID: 0.25 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 290900 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
95-47-6	o-Xylene	ND		2.0	0.15
100-42-5	Styrene	ND		5.0	0.51
75-25-2	Bromoform	ND		3.0	0.56
98-82-8	Isopropylbenzene	ND		2.0	0.51
108-86-1	Bromobenzene	ND		2.0	0.18
103-65-1	N-Propylbenzene	ND		3.0	0.50
96-18-4	1,2,3-Trichloropropane	ND		2.0	0.41
95-49-8	2-Chlorotoluene	ND		3.0	0.51
108-67-8	1,3,5-Trimethylbenzene	ND		3.0	0.55
106-43-4	4-Chlorotoluene	ND		2.0	0.51
98-06-6	t-Butylbenzene	ND		3.0	0.58
95-63-6	1,2,4-Trimethylbenzene	ND		3.0	0.61
135-98-8	sec-Butylbenzene	ND		3.0	0.49
541-73-1	1,3-Dichlorobenzene	ND		2.0	0.18
99-87-6	4-Isopropyltoluene	ND		3.0	0.28
106-46-7	1,4-Dichlorobenzene	ND		4.0	0.98
104-51-8	n-Butylbenzene	ND		3.0	0.44
95-50-1	1,2-Dichlorobenzene	ND		2.0	0.46
96-12-8	1,2-Dibromo-3-Chloropropane	ND		10	1.8
120-82-1	1,2,4-Trichlorobenzene	ND		2.0	0.33
87-61-6	1,2,3-Trichlorobenzene	ND		5.0	0.46
87-68-3	Hexachlorobutadiene	ND		6.0	0.79
91-20-3	Naphthalene	ND		4.0	0.93
1634-04-4	Methyl tert-butyl ether	ND		2.0	0.44

CAS NO.	SURROGATE	%REC	Q	LIMITS
2037-26-5	Toluene-d8 (Surr)	99		80-122
460-00-4	4-Bromofluorobenzene (Surr)	102		80-125
1868-53-7	Dibromofluoromethane (Surr)	100		77-120
98-08-8	Trifluorotoluene (Surr)	102		80-120
17060-07-0	1,2-Dichloroethane-d4 (Surr)	102		80-126

*Handwritten signature/initials: JW 12-18-18*



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### MEMORANDUM

DATE: January 7, 2019

TO: Steve Hall, START-IV Project Manager, E & E, Seattle, Washington

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington *MW*

SUBJ: **Organic Data Quality Assurance Review, May Creek Removal Action Site, Renton, Washington**

REF: TO: TO-68HE0718F0470 PAN: 1004530.0470.001.01

The data quality assurance review of six water samples collected from the May Creek Removal Action site located in Renton, Washington, has been completed. Hydrocarbon Identification analysis (Ecology Method NWTPH-HCID) was performed by Test America, Inc., Tacoma, Washington. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Manual Process (S2B/4VM).

The samples were numbered:

18111401    18111402    18111403    18111404    18111405    18111406

#### Data Qualifications:

**1. Sample Holding Times: Satisfactory.**

The samples were maintained within the QC limits of  $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ . The samples were collected on December 11, 2018, extracted on December 18, 2018, and analyzed by December 19, 2018, therefore meeting QC criteria of less than 14 days between collection and extraction for soil samples and less than 40 days between extraction and analysis.

**2. Calibration: Acceptable.**

Calculations were verified as correct.

**3. Blanks: Acceptable.**

A method blank was analyzed for each extraction batch for each matrix and analysis system. TPHs were not detected in the method blank.

**4. System Monitoring Compounds (SMC): Satisfactory.**

All recoveries of the SMCs were within QC limits except 4-Bromofluorobenzene failed the recovery criteria low for samples 18111402, 18111403, and 18111405. According to the laboratory, evidence of matrix interference was present; therefore, no actions were taken based on these outliers.





**5. Performance Evaluation Samples: Not Provided.**

Performance evaluation samples were not provided to the laboratory.

**6. Quantitation and Quantitation Limits: Acceptable.**

Sample concentrations were correctly calculated.

**7. Laboratory Contact: Not Required.**

No laboratory contact was required.

**8. Overall Assessment of Data for Use**

A total of 18 results were validated in this data memorandum. No sample results were qualified as estimated quantities (J) based on duplicate precision outliers, holding time outliers, incorrect sample containers, or sample temperature outliers. No sample results were rejected (R).

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the analytical method(s), the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, and/or the Office of Emergency and Remedial Response Publication "National Functional Guidelines for Superfund Organic Methods Data Review, January 2017". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

- J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
- Q - Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.
- R - The data is rejected and unusable. The analyte may or may not be present in the sample.
- U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.



FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82662-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111401 Lab Sample ID: 580-82662-1  
 Matrix: Water Lab File ID: 106B2001.D  
 Analysis Method: NWTPH-HCID Date Collected: 12/11/2018 08:58  
 Extraction Method: 3510C Date Extracted: 12/18/2018 08:00  
 Sample wt/vol: 883.5(mL) Date Analyzed: 12/19/2018 21:59  
 Con. Extract Vol.: 1(mL) Dilution Factor: 1  
 Injection Volume: 2(uL) GC Column: ZB-1HT ID: 0.25 (mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 291546 Units: mg/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	RL
STL00299	Motor Oil	0.68		0.11	0.11
STL00228	Gasoline	<del>ND</del> <i>mu</i>		0.023	0.023
STL00096	#2 Diesel (>C12-C24)	0.31		0.057	0.057

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	72		50-150
460-00-4	4-Bromofluorobenzene (Surr)	50		50-150

FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82662-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111402 Lab Sample ID: 580-82662-2  
 Matrix: Water Lab File ID: 107B2101.D  
 Analysis Method: NWTPH-HCID Date Collected: 12/11/2018 10:00  
 Extraction Method: 3510C Date Extracted: 12/18/2018 08:00  
 Sample wt/vol: 906.1 (mL) Date Analyzed: 12/19/2018 22:21  
 Con. Extract Vol.: 1 (mL) Dilution Factor: 1  
 Injection Volume: 2 (uL) GC Column: ZB-1HT ID: 0.25 (mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 291546 Units: mg/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	RL
STL00299	Motor Oil	0.56		0.11	0.11
STL00228	Gasoline	<del>ND</del> <i>mw</i>		0.022	<i>U</i> 0.022
STL00096	#2 Diesel (>C12-C24)	0.29		0.055	0.055

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	56		50-150
460-00-4	4-Bromofluorobenzene (Surr)	41	<i>x</i> <i>mw</i>	50-150

*mw 7-19*

FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82662-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111403 Lab Sample ID: 580-82662-3  
 Matrix: Water Lab File ID: 108B2201.D  
 Analysis Method: NWTPH-HCID Date Collected: 12/11/2018 10:21  
 Extraction Method: 3510C Date Extracted: 12/18/2018 08:00  
 Sample wt/vol: 839.2 (mL) Date Analyzed: 12/19/2018 22:43  
 Con. Extract Vol.: 1 (mL) Dilution Factor: 1  
 Injection Volume: 2 (uL) GC Column: ZB-1HT ID: 0.25 (mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 291546 Units: mg/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	RL
STL00299	Motor Oil	0.78		0.12	0.12
STL00228	Gasoline	<del>ND</del> <i>mw</i>		0.024	0.024
STL00096	#2 Diesel (>C12-C24)	0.31		0.060	0.060

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	68		50-150
460-00-4	4-Bromofluorobenzene (Surr)	48	<i>/mw</i>	50-150

FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82662-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111404 Lab Sample ID: 580-82662-4  
 Matrix: Water Lab File ID: 109B2301.D  
 Analysis Method: NWTPH-HCID Date Collected: 12/11/2018 11:27  
 Extraction Method: 3510C Date Extracted: 12/18/2018 08:00  
 Sample wt/vol: 929.9 (mL) Date Analyzed: 12/19/2018 23:04  
 Con. Extract Vol.: 1 (mL) Dilution Factor: 1  
 Injection Volume: 2 (uL) GC Column: ZB-1HT ID: 0.25 (mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 291546 Units: mg/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	RL
STL00299	Motor Oil	0.68		0.11	0.11
STL00228	Gasoline	<del>ND</del>		0.022	0.022
STL00096	#2 Diesel (>C12-C24)	0.29		0.054	0.054

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	73		50-150
460-00-4	4-Bromofluorobenzene (Surr)	58		50-150

*mwj-7/9*



FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82662-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111405 Lab Sample ID: 580-82662-5  
 Matrix: Water Lab File ID: 110B2401.D  
 Analysis Method: NWTPH-HCID Date Collected: 12/11/2018 10:51  
 Extraction Method: 3510C Date Extracted: 12/18/2018 08:00  
 Sample wt/vol: 995.6(mL) Date Analyzed: 12/19/2018 23:26  
 Con. Extract Vol.: 1(mL) Dilution Factor: 1  
 Injection Volume: 2(uL) GC Column: ZB-1HT ID: 0.25 (mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 291546 Units: mg/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	RL
STL00299	Motor Oil	0.51		0.10	0.10
STL00228	Gasoline	ND <i>mw</i>		0.020 <i>U</i>	0.020
STL00096	#2 Diesel (>C12-C24)	0.26		0.050	0.050

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	66		50-150
460-00-4	4-Bromofluorobenzene (Surr)	40	<i>mw</i>	50-150

FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82662-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111406 Lab Sample ID: 580-82662-6  
 Matrix: Water Lab File ID: 111B2501.D  
 Analysis Method: NWTPH-HCID Date Collected: 12/11/2018 11:00  
 Extraction Method: 3510C Date Extracted: 12/18/2018 08:00  
 Sample wt/vol: 963.5(mL) Date Analyzed: 12/19/2018 23:48  
 Con. Extract Vol.: 1(mL) Dilution Factor: 1  
 Injection Volume: 2(uL) GC Column: ZB-1HT ID: 0.25(mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 291546 Units: mg/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	RL
STL00299	Motor Oil	0.62		0.10	0.10
STL00228	Gasoline	<del>ND</del> <i>mw</i>		0.021 <i>U</i>	0.021
STL00096	#2 Diesel (>C12-C24)	0.30		0.052	0.052

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	70		50-150
460-00-4	4-Bromofluorobenzene (Surr)	51		50-150



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### MEMORANDUM

DATE: January 7, 2019

TO: Steve Hall, START-IV Project Manager, E & E, Seattle, Washington

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington *MW*

SUBJ: **Organic Data Quality Assurance Review, May Creek Removal Action Site, Renton, Washington**

REF: TO: TO-68HE0718F0470 PAN: 1004530.0470.001.01

The data quality assurance review of seven water samples collected from the May Creek Removal Action site in Renton, Washington, has been completed. Volatile Organic Compound (VOC) analysis (EPA Method 8260) was performed by Test America, Inc., Tacoma, Washington. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Manual Process (S2B/4VM).

The samples were numbered:

18111401	18111402	18111403	18111404	18111405
18111406	18111407			

#### Data Qualifications:

##### 1. Sample Holding Times: Acceptable.

The samples were maintained within the QC limits of  $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ . The samples were collected on December 11, 2018, and were analyzed by December 19, 2018, therefore meeting QC criteria of less than 14 days between collection and analysis for preserved water samples.

##### 2. Tuning: Acceptable.

Tuning was performed at the beginning of each 12-hour analysis sequence. All results were within QC limits.

##### 3. Initial Calibration: Acceptable.

All average Relative Response Factors (RRFs) were within the QC limits. All Relative Standard Deviations (RSDs) and/or correlation coefficients were within the QC limits.

##### 4. Continuing Calibration: Satisfactory.

All RRFs were within the QC limits except chloroethane; associated positive results were qualified as estimated quantities with a high bias (JH) and sample quantitation limits were rejected (R). Applicable percent differences were within QC limits except bromoform (high recovery associated with samples 18111401, 18111402, 18111403, 18111404, 18111405, 18111406, and 18111407), and naphthalene and 1,2,3-trichlorobenzene with low recoveries associated with samples 18111404, 18111405, 18111406, and 18111407. Positive results and sample quantitation limits associated with low



recoveries were qualified as estimated quantities with a low bias (JL or UJL) and positive results associated with high recoveries were qualified as estimated quantities with a high bias (JH).

**5. Blanks: Acceptable.**

A method blank was analyzed for each 20 sample batch per matrix. There were no detections in any method blank. There were no detections in the trip blank.

**6. System Monitoring Compounds (SMCs): Acceptable.**

All SMC recoveries were within QC limits.

**7. Blank Spike (BS)/BS Duplicate (BSD) Analysis: Satisfactory.**

BS and BSD analyses were performed per SDG or per matrix per concentration level, whichever was more frequent. All recoveries were within QC limits except bromoform and dibromochloromethane failed the recovery criteria high for the BS and BSD. These analytes were not detected in the associated samples; therefore, no qualifications were required.

**8. Spike Duplicate Analysis: Satisfactory.**

Spike duplicate analyses were performed per SDG or per matrix per concentration level, whichever was more frequent. All spike duplicate results were within QC limits except 1,2,3-trichlorobenzene and naphthalene. No actions were taken based on duplicate outliers alone.

**9. Internal Standards: Acceptable.**

All internal standards were within  $\pm 30$  seconds of the continuing calibration internal standard retention times. All area counts were within 50 % to 200 % of the continuing calibration area counts.

**10. Performance Evaluation Sample Analysis: Not Provided.**

Performance evaluation samples were not provided to the laboratory.

**11. Overall Assessment of Data for Use**

A total of 420 results were validated in this data memorandum. No sample results were qualified as estimated quantities (J) based on duplicate precision outliers, spike accuracy outliers, holding time outliers, incorrect sample containers, or sample temperature outliers. No sample results were rejected (R).

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the analytical method(s), the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, and/or the Office of Emergency and Remedial Response Publication "National Functional Guidelines for Superfund Organic Methods Data Review, January 2017". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

H - The sample result is biased high.

J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.



- K - The bias of the sample is not known.
- L - The sample result is biased low.
- N - The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification".
- NJ - The analyte has been "tentatively identified" or "presumptively" as present and the associated numerical value is the estimated concentration in the sample.
- Q - Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.
- R - The data is rejected and unusable. The analyte may or may not be present in the sample.
- U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.





FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82662-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111401 Lab Sample ID: 580-82662-1  
 Matrix: Water Lab File ID: L1818025.D  
 Analysis Method: 8260C Date Collected: 12/11/2018 08:58  
 Sample wt/vol: 5(mL) Date Analyzed: 12/19/2018 00:57  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: DB-VRX ID: 0.25 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 291482 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-71-8	Dichlorodifluoromethane	ND		10	2.3
74-87-3	Chloromethane	ND		20	5.4
75-01-4	Vinyl chloride	ND		1.0	0.22
74-83-9	Bromomethane	ND		6.0	1.1
75-00-3	Chloroethane	ND		5.0	1.1
75-69-4	Trichlorofluoromethane	ND		3.0	0.63
75-35-4	1,1-Dichloroethene	ND		4.0	0.78
75-09-2	Methylene Chloride	ND		5.0	1.4
156-60-5	trans-1,2-Dichloroethene	ND		3.0	0.39
75-34-3	1,1-Dichloroethane	ND		2.0	0.22
594-20-7	2,2-Dichloropropane	ND		3.0	0.32
156-59-2	cis-1,2-Dichloroethene	ND		3.0	0.69
74-97-5	Bromochloromethane	ND		2.0	0.29
67-66-3	Chloroform	ND		5.0	0.50
71-55-6	1,1,1-Trichloroethane	ND		3.0	0.14
56-23-5	Carbon tetrachloride	ND		3.0	0.30
563-58-6	1,1-Dichloropropene	ND		3.0	0.29
71-43-2	Benzene	ND		3.0	0.53
107-06-2	1,2-Dichloroethane	ND		2.0	0.53
79-01-6	Trichloroethene	ND		3.0	0.85
78-87-5	1,2-Dichloropropane	ND		1.0	0.18
74-95-3	Dibromomethane	ND		2.0	0.34
75-27-4	Bromodichloromethane	ND		2.0	0.14
10061-01-5	cis-1,3-Dichloropropene	ND		1.0	0.20
108-88-3	Toluene	ND		2.0	0.39
10061-02-6	trans-1,3-Dichloropropene	ND		1.0	0.16
79-00-5	1,1,2-Trichloroethane	ND		1.0	0.24
127-18-4	Tetrachloroethene	ND		3.0	0.41
142-28-9	1,3-Dichloropropane	ND		2.0	0.35
124-48-1	Dibromochloromethane	ND		1.0	0.20
106-93-4	1,2-Dibromoethane	ND		2.0	0.40
108-90-7	Chlorobenzene	ND		2.0	0.44
100-41-4	Ethylbenzene	ND		3.0	0.50
630-20-6	1,1,1,2-Tetrachloroethane	ND		2.0	0.18
79-34-5	1,1,2,2-Tetrachloroethane	ND		3.0	0.52
179601-23-1	m-Xylene & p-Xylene	ND		3.0	0.75

*MW 17-19*

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82662-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111401 Lab Sample ID: 580-82662-1  
 Matrix: Water Lab File ID: L1818025.D  
 Analysis Method: 8260C Date Collected: 12/11/2018 08:58  
 Sample wt/vol: 5 (mL) Date Analyzed: 12/19/2018 00:57  
 Soil Aliquot Vol.: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: DB-VRX ID: 0.25 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 291482 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
95-47-6	o-Xylene	ND		2.0	0.15
100-42-5	Styrene	ND		5.0	0.51
75-25-2	Bromoform	ND		3.0	0.56
98-82-8	Isopropylbenzene	ND		2.0	0.51
108-86-1	Bromobenzene	ND		2.0	0.18
103-65-1	N-Propylbenzene	ND		3.0	0.50
96-18-4	1,2,3-Trichloropropane	ND		2.0	0.41
95-49-8	2-Chlorotoluene	ND		3.0	0.51
108-67-8	1,3,5-Trimethylbenzene	ND		3.0	0.55
106-43-4	4-Chlorotoluene	ND		2.0	0.51
98-06-6	t-Butylbenzene	ND		3.0	0.58
95-63-6	1,2,4-Trimethylbenzene	ND		3.0	0.61
135-98-8	sec-Butylbenzene	ND		3.0	0.49
541-73-1	1,3-Dichlorobenzene	ND		2.0	0.18
99-87-6	4-Isopropyltoluene	ND		3.0	0.28
106-46-7	1,4-Dichlorobenzene	ND		4.0	0.98
104-51-8	n-Butylbenzene	ND		3.0	0.44
95-50-1	1,2-Dichlorobenzene	ND		2.0	0.46
96-12-8	1,2-Dibromo-3-Chloropropane	ND		10	1.8
120-82-1	1,2,4-Trichlorobenzene	ND		2.0	0.33
87-61-6	1,2,3-Trichlorobenzene	ND		5.0	0.46
87-68-3	Hexachlorobutadiene	ND		6.0	0.79
91-20-3	Naphthalene	ND		4.0	0.93
1634-04-4	Methyl tert-butyl ether	ND		2.0	0.44

CAS NO.	SURROGATE	%REC	Q	LIMITS
2037-26-5	Toluene-d8 (Surr)	102		80-122
460-00-4	4-Bromofluorobenzene (Surr)	100		80-125
1868-53-7	Dibromofluoromethane (Surr)	100		77-120
98-08-8	Trifluorotoluene (Surr)	101		80-120
17060-07-0	1,2-Dichloroethane-d4 (Surr)	108		80-126

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle

Job No.: 580-82662-1

SDG No.: \_\_\_\_\_

Client Sample ID: 18111402

Lab Sample ID: 580-82662-2

Matrix: Water

Lab File ID: L1818026.D

Analysis Method: 8260C

Date Collected: 12/11/2018 10:00

Sample wt/vol: 5(mL)

Date Analyzed: 12/19/2018 01:22

Soil Aliquot Vol: \_\_\_\_\_

Dilution Factor: 1

Soil Extract Vol.: \_\_\_\_\_

GC Column: DB-VRX ID: 0.25(mm)

% Moisture: \_\_\_\_\_

Level: (low/med) Low

Analysis Batch No.: 291482

Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-71-8	Dichlorodifluoromethane	ND		10	2.3
74-87-3	Chloromethane	ND		20	5.4
75-01-4	Vinyl chloride	ND		1.0	0.22
74-83-9	Bromomethane	ND		6.0	1.1
75-00-3	Chloroethane	ND		5.0	1.1
75-69-4	Trichlorofluoromethane	ND		3.0	0.63
75-35-4	1,1-Dichloroethene	ND		4.0	0.78
75-09-2	Methylene Chloride	ND		5.0	1.4
156-60-5	trans-1,2-Dichloroethene	ND		3.0	0.39
75-34-3	1,1-Dichloroethane	ND		2.0	0.22
594-20-7	2,2-Dichloropropane	ND		3.0	0.32
156-59-2	cis-1,2-Dichloroethene	ND		3.0	0.69
74-97-5	Bromochloromethane	ND		2.0	0.29
67-66-3	Chloroform	ND		5.0	0.50
71-55-6	1,1,1-Trichloroethane	ND		3.0	0.14
56-23-5	Carbon tetrachloride	ND		3.0	0.30
563-58-6	1,1-Dichloropropene	ND		3.0	0.29
71-43-2	Benzene	ND		3.0	0.53
107-06-2	1,2-Dichloroethane	ND		2.0	0.53
79-01-6	Trichloroethene	ND		3.0	0.85
78-87-5	1,2-Dichloropropane	ND		1.0	0.18
74-95-3	Dibromomethane	ND		2.0	0.34
75-27-4	Bromodichloromethane	ND		2.0	0.14
10061-01-5	cis-1,3-Dichloropropene	ND		1.0	0.20
108-88-3	Toluene	ND		2.0	0.39
10061-02-6	trans-1,3-Dichloropropene	ND		1.0	0.16
79-00-5	1,1,2-Trichloroethane	ND		1.0	0.24
127-18-4	Tetrachloroethene	ND		3.0	0.41
142-28-9	1,3-Dichloropropane	ND		2.0	0.35
124-48-1	Dibromochloromethane	ND		1.0	0.20
106-93-4	1,2-Dibromoethane	ND		2.0	0.40
108-90-7	Chlorobenzene	ND		2.0	0.44
100-41-4	Ethylbenzene	ND		3.0	0.50
630-20-6	1,1,1,2-Tetrachloroethane	ND		2.0	0.18
79-34-5	1,1,2,2-Tetrachloroethane	ND		3.0	0.52
179601-23-1	m-Xylene & p-Xylene	ND		3.0	0.75

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82662-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111402 Lab Sample ID: 580-82662-2  
 Matrix: Water Lab File ID: L1818026.D  
 Analysis Method: 8260C Date Collected: 12/11/2018 10:00  
 Sample wt/vol: 5(mL) Date Analyzed: 12/19/2018 01:22  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: DB-VRX ID: 0.25(mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 291482 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
95-47-6	o-Xylene	ND		2.0	0.15
100-42-5	Styrene	ND		5.0	0.51
75-25-2	Bromoform	ND		3.0	0.56
98-82-8	Isopropylbenzene	ND		2.0	0.51
108-86-1	Bromobenzene	ND		2.0	0.18
103-65-1	N-Propylbenzene	ND		3.0	0.50
96-18-4	1,2,3-Trichloropropane	ND		2.0	0.41
95-49-8	2-Chlorotoluene	ND		3.0	0.51
108-67-8	1,3,5-Trimethylbenzene	ND		3.0	0.55
106-43-4	4-Chlorotoluene	ND		2.0	0.51
98-06-6	t-Butylbenzene	ND		3.0	0.58
95-63-6	1,2,4-Trimethylbenzene	ND		3.0	0.61
135-98-8	sec-Butylbenzene	ND		3.0	0.49
541-73-1	1,3-Dichlorobenzene	ND		2.0	0.18
99-87-6	4-Isopropyltoluene	ND		3.0	0.28
106-46-7	1,4-Dichlorobenzene	ND		4.0	0.98
104-51-8	n-Butylbenzene	ND		3.0	0.44
95-50-1	1,2-Dichlorobenzene	ND		2.0	0.46
96-12-8	1,2-Dibromo-3-Chloropropane	ND		10	1.8
120-82-1	1,2,4-Trichlorobenzene	ND		2.0	0.33
87-61-6	1,2,3-Trichlorobenzene	ND		5.0	0.46
87-68-3	Hexachlorobutadiene	ND		6.0	0.79
91-20-3	Naphthalene	ND		4.0	0.93
1634-04-4	Methyl tert-butyl ether	ND		2.0	0.44

CAS NO.	SURROGATE	%REC	Q	LIMITS
2037-26-5	Toluene-d8 (Surr)	104		80-122
460-00-4	4-Bromofluorobenzene (Surr)	100		80-125
1868-53-7	Dibromofluoromethane (Surr)	99		77-120
98-08-8	Trifluorotoluene (Surr)	100		80-120
17060-07-0	1,2-Dichloroethane-d4 (Surr)	100		80-126



FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82662-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111403 Lab Sample ID: 580-82662-3  
 Matrix: Water Lab File ID: L1818027.D  
 Analysis Method: 8260C Date Collected: 12/11/2018 10:21  
 Sample wt/vol: 5(mL) Date Analyzed: 12/19/2018 01:47  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: DB-VRX ID: 0.25 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 291482 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-71-8	Dichlorodifluoromethane	ND		10	2.3
74-87-3	Chloromethane	ND		20	5.4
75-01-4	Vinyl chloride	ND		1.0	0.22
74-83-9	Bromomethane	ND		6.0	1.1
75-00-3	Chloroethane	ND		5.0	1.1
75-69-4	Trichlorofluoromethane	ND		3.0	0.63
75-35-4	1,1-Dichloroethene	ND		4.0	0.78
75-09-2	Methylene Chloride	ND		5.0	1.4
156-60-5	trans-1,2-Dichloroethene	ND		3.0	0.39
75-34-3	1,1-Dichloroethane	ND		2.0	0.22
594-20-7	2,2-Dichloropropane	ND		3.0	0.32
156-59-2	cis-1,2-Dichloroethene	ND		3.0	0.69
74-97-5	Bromochloromethane	ND		2.0	0.29
67-66-3	Chloroform	ND		5.0	0.50
71-55-6	1,1,1-Trichloroethane	ND		3.0	0.14
56-23-5	Carbon tetrachloride	ND		3.0	0.30
563-58-6	1,1-Dichloropropene	ND		3.0	0.29
71-43-2	Benzene	ND		3.0	0.53
107-06-2	1,2-Dichloroethane	ND		2.0	0.53
79-01-6	Trichloroethene	ND		3.0	0.85
78-87-5	1,2-Dichloropropane	ND		1.0	0.18
74-95-3	Dibromomethane	ND		2.0	0.34
75-27-4	Bromodichloromethane	ND		2.0	0.14
10061-01-5	cis-1,3-Dichloropropene	ND		1.0	0.20
108-88-3	Toluene	ND		2.0	0.39
10061-02-6	trans-1,3-Dichloropropene	ND		1.0	0.16
79-00-5	1,1,2-Trichloroethane	ND		1.0	0.24
127-18-4	Tetrachloroethene	ND		3.0	0.41
142-28-9	1,3-Dichloropropane	ND		2.0	0.35
124-48-1	Dibromochloromethane	ND		1.0	0.20
106-93-4	1,2-Dibromoethane	ND		2.0	0.40
108-90-7	Chlorobenzene	ND		2.0	0.44
100-41-4	Ethylbenzene	ND		3.0	0.50
630-20-6	1,1,1,2-Tetrachloroethane	ND		2.0	0.18
79-34-5	1,1,2,2-Tetrachloroethane	ND		3.0	0.52
179601-23-1	m-Xylene & p-Xylene	ND		3.0	0.75

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82662-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111403 Lab Sample ID: 580-82662-3  
 Matrix: Water Lab File ID: L1818027.D  
 Analysis Method: 8260C Date Collected: 12/11/2018 10:21  
 Sample wt/vol: 5 (mL) Date Analyzed: 12/19/2018 01:47  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: DB-VRX ID: 0.25 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 291482 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
95-47-6	o-Xylene	ND		2.0	0.15
100-42-5	Styrene	ND		5.0	0.51
75-25-2	Bromoform	ND	<i>1m</i>	3.0	0.56
98-82-8	Isopropylbenzene	ND		2.0	0.51
108-86-1	Bromobenzene	ND		2.0	0.18
103-65-1	N-Propylbenzene	ND		3.0	0.50
96-18-4	1,2,3-Trichloropropane	ND		2.0	0.41
95-49-8	2-Chlorotoluene	ND		3.0	0.51
108-67-8	1,3,5-Trimethylbenzene	ND		3.0	0.55
106-43-4	4-Chlorotoluene	ND		2.0	0.51
98-06-6	t-Butylbenzene	ND		3.0	0.58
95-63-6	1,2,4-Trimethylbenzene	ND		3.0	0.61
135-98-8	sec-Butylbenzene	ND		3.0	0.49
541-73-1	1,3-Dichlorobenzene	ND		2.0	0.18
99-87-6	4-Isopropyltoluene	ND		3.0	0.28
106-46-7	1,4-Dichlorobenzene	ND		4.0	0.98
104-51-8	n-Butylbenzene	ND		3.0	0.44
95-50-1	1,2-Dichlorobenzene	ND		2.0	0.46
96-12-8	1,2-Dibromo-3-Chloropropane	ND		10	1.8
120-82-1	1,2,4-Trichlorobenzene	ND		2.0	0.33
87-61-6	1,2,3-Trichlorobenzene	ND		5.0	0.46
87-68-3	Hexachlorobutadiene	ND		6.0	0.79
91-20-3	Naphthalene	ND		4.0	0.93
1634-04-4	Methyl tert-butyl ether	ND		2.0	0.44

CAS NO.	SURROGATE	%REC	Q	LIMITS
2037-26-5	Toluene-d8 (Surr)	108		80-122
460-00-4	4-Bromofluorobenzene (Surr)	103		80-125
1868-53-7	Dibromofluoromethane (Surr)	101		77-120
98-08-8	Trifluorotoluene (Surr)	100		80-120
17060-07-0	1,2-Dichloroethane-d4 (Surr)	109		80-126



FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82662-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111404 Lab Sample ID: 580-82662-4  
 Matrix: Water Lab File ID: L1918010.D  
 Analysis Method: 8260C Date Collected: 12/11/2018 11:27  
 Sample wt/vol: 5(mL) Date Analyzed: 12/19/2018 13:39  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: DB-VRX ID: 0.25 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 291539 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-71-8	Dichlorodifluoromethane	ND		10	2.3
74-87-3	Chloromethane	ND		20	5.4
75-01-4	Vinyl chloride	ND		1.0	0.22
74-83-9	Bromomethane	ND		6.0	1.1
75-00-3	Chloroethane	ND		5.0	1.1
75-69-4	Trichlorofluoromethane	ND		3.0	0.63
75-35-4	1,1-Dichloroethene	ND		4.0	0.78
75-09-2	Methylene Chloride	ND		5.0	1.4
156-60-5	trans-1,2-Dichloroethene	ND		3.0	0.39
75-34-3	1,1-Dichloroethane	ND		2.0	0.22
594-20-7	2,2-Dichloropropane	ND		3.0	0.32
156-59-2	cis-1,2-Dichloroethene	ND		3.0	0.69
74-97-5	Bromochloromethane	ND		2.0	0.29
67-66-3	Chloroform	ND		5.0	0.50
71-55-6	1,1,1-Trichloroethane	ND		3.0	0.14
56-23-5	Carbon tetrachloride	ND		3.0	0.30
563-58-6	1,1-Dichloropropene	ND		3.0	0.29
71-43-2	Benzene	ND		3.0	0.53
107-06-2	1,2-Dichloroethane	ND		2.0	0.53
79-01-6	Trichloroethene	ND		3.0	0.85
78-87-5	1,2-Dichloropropane	ND		1.0	0.18
74-95-3	Dibromomethane	ND		2.0	0.34
75-27-4	Bromodichloromethane	ND		2.0	0.14
10061-01-5	cis-1,3-Dichloropropene	ND		1.0	0.20
108-88-3	Toluene	ND		2.0	0.39
10061-02-6	trans-1,3-Dichloropropene	ND		1.0	0.16
79-00-5	1,1,2-Trichloroethane	ND		1.0	0.24
127-18-4	Tetrachloroethene	ND		3.0	0.41
142-28-9	1,3-Dichloropropane	ND		2.0	0.35
124-48-1	Dibromochloromethane	ND		1.0	0.20
106-93-4	1,2-Dibromoethane	ND		2.0	0.40
108-90-7	Chlorobenzene	ND		2.0	0.44
100-41-4	Ethylbenzene	ND		3.0	0.50
630-20-6	1,1,1,2-Tetrachloroethane	ND		2.0	0.18
79-34-5	1,1,2,2-Tetrachloroethane	ND		3.0	0.52
179601-23-1	m-Xylene & p-Xylene	ND		3.0	0.75



FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82662-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111405 Lab Sample ID: 580-82662-5  
 Matrix: Water Lab File ID: L1918011.D  
 Analysis Method: 8260C Date Collected: 12/11/2018 10:51  
 Sample wt/vol: 5(mL) Date Analyzed: 12/19/2018 14:04  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: DB-VRX ID: 0.25(mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 291539 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-71-8	Dichlorodifluoromethane	ND		10	2.3
74-87-3	Chloromethane	ND		20	5.4
75-01-4	Vinyl chloride	ND		1.0	0.22
74-83-9	Bromomethane	ND		6.0	1.1
75-00-3	Chloroethane	ND		5.0	1.1
75-69-4	Trichlorofluoromethane	ND		3.0	0.63
75-35-4	1,1-Dichloroethene	ND		4.0	0.78
75-09-2	Methylene Chloride	ND		5.0	1.4
156-60-5	trans-1,2-Dichloroethene	ND		3.0	0.39
75-34-3	1,1-Dichloroethane	ND		2.0	0.22
594-20-7	2,2-Dichloropropane	ND		3.0	0.32
156-59-2	cis-1,2-Dichloroethene	ND		3.0	0.69
74-97-5	Bromochloromethane	ND		2.0	0.29
67-66-3	Chloroform	ND		5.0	0.50
71-55-6	1,1,1-Trichloroethane	ND		3.0	0.14
56-23-5	Carbon tetrachloride	ND		3.0	0.30
563-58-6	1,1-Dichloropropene	ND		3.0	0.29
71-43-2	Benzene	ND		3.0	0.53
107-06-2	1,2-Dichloroethane	ND		2.0	0.53
79-01-6	Trichloroethene	ND		3.0	0.85
78-87-5	1,2-Dichloropropane	ND		1.0	0.18
74-95-3	Dibromomethane	ND		2.0	0.34
75-27-4	Bromodichloromethane	ND		2.0	0.14
10061-01-5	cis-1,3-Dichloropropene	ND		1.0	0.20
108-88-3	Toluene	ND		2.0	0.39
10061-02-6	trans-1,3-Dichloropropene	ND		1.0	0.16
79-00-5	1,1,2-Trichloroethane	ND		1.0	0.24
127-18-4	Tetrachloroethene	ND		3.0	0.41
142-28-9	1,3-Dichloropropane	ND		2.0	0.35
124-48-1	Dibromochloromethane	ND		1.0	0.20
106-93-4	1,2-Dibromoethane	ND		2.0	0.40
108-90-7	Chlorobenzene	ND		2.0	0.44
100-41-4	Ethylbenzene	ND		3.0	0.50
630-20-6	1,1,1,2-Tetrachloroethane	ND		2.0	0.18
79-34-5	1,1,2,2-Tetrachloroethane	ND		3.0	0.52
179601-23-1	m-Xylene & p-Xylene	ND		3.0	0.75

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82662-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111405 Lab Sample ID: 580-82662-5  
 Matrix: Water Lab File ID: L1918011.D  
 Analysis Method: 8260C Date Collected: 12/11/2018 10:51  
 Sample wt/vol: 5(mL) Date Analyzed: 12/19/2018 14:04  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: DB-VRX ID: 0.25(mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 291539 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
95-47-6	o-Xylene	ND		2.0	0.15
100-42-5	Styrene	ND		5.0	0.51
75-25-2	Bromoform	ND	<i>mw</i>	3.0	0.56
98-82-8	Isopropylbenzene	ND		2.0	0.51
108-86-1	Bromobenzene	ND		2.0	0.18
103-65-1	N-Propylbenzene	ND		3.0	0.50
96-18-4	1,2,3-Trichloropropane	ND		2.0	0.41
95-49-8	2-Chlorotoluene	ND		3.0	0.51
108-67-8	1,3,5-Trimethylbenzene	ND		3.0	0.55
106-43-4	4-Chlorotoluene	ND		2.0	0.51
98-06-6	t-Butylbenzene	ND		3.0	0.58
95-63-6	1,2,4-Trimethylbenzene	ND		3.0	0.61
135-98-8	sec-Butylbenzene	ND		3.0	0.49
541-73-1	1,3-Dichlorobenzene	ND		2.0	0.18
99-87-6	4-Isopropyltoluene	ND		3.0	0.28
106-46-7	1,4-Dichlorobenzene	ND		4.0	0.98
104-51-8	n-Butylbenzene	ND		3.0	0.44
95-50-1	1,2-Dichlorobenzene	ND		2.0	0.46
96-12-8	1,2-Dibromo-3-Chloropropane	ND		10	1.8
120-82-1	1,2,4-Trichlorobenzene	ND		2.0	0.33
87-61-6	1,2,3-Trichlorobenzene	ND		5.0	0.46
87-68-3	Hexachlorobutadiene	ND		6.0	0.79
91-20-3	Naphthalene	ND	<i>mw</i>	4.0	0.93
1634-04-4	Methyl tert-butyl ether	ND	<i>mw</i>	2.0	0.44

CAS NO.	SURROGATE	%REC	Q	LIMITS
2037-26-5	Toluene-d8 (Surr)	100		80-122
460-00-4	4-Bromofluorobenzene (Surr)	98		80-125
1868-53-7	Dibromofluoromethane (Surr)	101		77-120
98-08-8	Trifluorotoluene (Surr)	106		80-120
17060-07-0	1,2-Dichloroethane-d4 (Surr)	106		80-126

*mw 17/19*

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82662-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111406 Lab Sample ID: 580-82662-6  
 Matrix: Water Lab File ID: L1918012.D  
 Analysis Method: 8260C Date Collected: 12/11/2018 11:00  
 Sample wt/vol: 5(mL) Date Analyzed: 12/19/2018 14:29  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: DB-VRX ID: 0.25 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 291539 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-71-8	Dichlorodifluoromethane	ND		10	2.3
74-87-3	Chloromethane	ND		20	5.4
75-01-4	Vinyl chloride	ND		1.0	0.22
74-83-9	Bromomethane	ND		6.0	1.1
75-00-3	Chloroethane	ND		3.0	1.1
75-69-4	Trichlorofluoromethane	ND		3.0	0.63
75-35-4	1,1-Dichloroethene	ND		4.0	0.78
75-09-2	Methylene Chloride	ND		5.0	1.4
156-60-5	trans-1,2-Dichloroethene	ND		3.0	0.39
75-34-3	1,1-Dichloroethane	ND		2.0	0.22
594-20-7	2,2-Dichloropropane	ND		3.0	0.32
156-59-2	cis-1,2-Dichloroethene	ND		3.0	0.69
74-97-5	Bromochloromethane	ND		2.0	0.29
67-66-3	Chloroform	ND		5.0	0.50
71-55-6	1,1,1-Trichloroethane	ND		3.0	0.14
56-23-5	Carbon tetrachloride	ND		3.0	0.30
563-58-6	1,1-Dichloropropene	ND		3.0	0.29
71-43-2	Benzene	ND		3.0	0.53
107-06-2	1,2-Dichloroethane	ND		2.0	0.53
79-01-6	Trichloroethene	ND		3.0	0.85
78-87-5	1,2-Dichloropropane	ND		1.0	0.18
74-95-3	Dibromomethane	ND		2.0	0.34
75-27-4	Bromodichloromethane	ND		2.0	0.14
10061-01-5	cis-1,3-Dichloropropene	ND		1.0	0.20
108-88-3	Toluene	ND		2.0	0.39
10061-02-6	trans-1,3-Dichloropropene	ND		1.0	0.16
79-00-5	1,1,2-Trichloroethane	ND		1.0	0.24
127-18-4	Tetrachloroethene	ND		3.0	0.41
142-28-9	1,3-Dichloropropane	ND		2.0	0.35
124-48-1	Dibromochloromethane	ND		1.0	0.20
106-93-4	1,2-Dibromoethane	ND		2.0	0.40
108-90-7	Chlorobenzene	ND		2.0	0.44
100-41-4	Ethylbenzene	ND		3.0	0.50
630-20-6	1,1,1,2-Tetrachloroethane	ND		2.0	0.18
79-34-5	1,1,2,2-Tetrachloroethane	ND		3.0	0.52
179601-23-1	m-Xylene & p-Xylene	ND		3.0	0.75

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82662-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111406 Lab Sample ID: 580-82662-6  
 Matrix: Water Lab File ID: L1918012.D  
 Analysis Method: 8260C Date Collected: 12/11/2018 11:00  
 Sample wt/vol: 5(mL) Date Analyzed: 12/19/2018 14:29  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: DB-VRX ID: 0.25(mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 291539 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
95-47-6	o-Xylene	ND		2.0	0.15
100-42-5	Styrene	ND		5.0	0.51
75-25-2	Bromoform	ND	<i>low</i>	3.0	0.56
98-82-8	Isopropylbenzene	ND		2.0	0.51
108-86-1	Bromobenzene	ND		2.0	0.18
103-65-1	N-Propylbenzene	ND		3.0	0.50
96-18-4	1,2,3-Trichloropropane	ND		2.0	0.41
95-49-8	2-Chlorotoluene	ND		3.0	0.51
108-67-8	1,3,5-Trimethylbenzene	ND		3.0	0.55
106-43-4	4-Chlorotoluene	ND		2.0	0.51
98-06-6	t-Butylbenzene	ND		3.0	0.58
95-63-6	1,2,4-Trimethylbenzene	ND		3.0	0.61
135-98-8	sec-Butylbenzene	ND		3.0	0.49
541-73-1	1,3-Dichlorobenzene	ND		2.0	0.18
99-87-6	4-Isopropyltoluene	ND		3.0	0.28
106-46-7	1,4-Dichlorobenzene	ND		4.0	0.98
104-51-8	n-Butylbenzene	ND		3.0	0.44
95-50-1	1,2-Dichlorobenzene	ND		2.0	0.46
96-12-8	1,2-Dibromo-3-Chloropropane	ND		10	1.8
120-82-1	1,2,4-Trichlorobenzene	ND		2.0	0.33
87-61-6	1,2,3-Trichlorobenzene	ND		5.0	0.46
87-68-3	Hexachlorobutadiene	ND		6.0	0.79
91-20-3	Naphthalene	ND		4.0	0.93
1634-04-4	Methyl tert-butyl ether	ND		2.0	0.44

CAS NO.	SURROGATE	%REC	Q	LIMITS
2037-26-5	Toluene-d8 (Surr)	103		80-122
460-00-4	4-Bromofluorobenzene (Surr)	102		80-125
1868-53-7	Dibromofluoromethane (Surr)	104		77-120
98-08-8	Trifluorotoluene (Surr)	104		80-120
17060-07-0	1,2-Dichloroethane-d4 (Surr)	109		80-126

*mw 1-7-19*

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82662-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111407 Lab Sample ID: 580-82662-7  
 Matrix: Water Lab File ID: L1918013.D  
 Analysis Method: 8260C Date Collected: 12/11/2018 07:00  
 Sample wt/vol: 5(mL) Date Analyzed: 12/19/2018 14:54  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: DB-VRX ID: 0.25 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 291539 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-71-8	Dichlorodifluoromethane	ND		10	2.3
74-87-3	Chloromethane	ND		20	5.4
75-01-4	Vinyl chloride	ND		1.0	0.22
74-83-9	Bromomethane	ND		6.0	1.1
75-00-3	Chloroethane	ND		5.0	1.1
75-69-4	Trichlorofluoromethane	ND		3.0	0.63
75-35-4	1,1-Dichloroethene	ND		4.0	0.78
75-09-2	Methylene Chloride	ND		5.0	1.4
156-60-5	trans-1,2-Dichloroethene	ND		3.0	0.39
75-34-3	1,1-Dichloroethane	ND		2.0	0.22
594-20-7	2,2-Dichloropropane	ND		3.0	0.32
156-59-2	cis-1,2-Dichloroethene	ND		3.0	0.69
74-97-5	Bromochloromethane	ND		2.0	0.29
67-66-3	Chloroform	ND		5.0	0.50
71-55-6	1,1,1-Trichloroethane	ND		3.0	0.14
56-23-5	Carbon tetrachloride	ND		3.0	0.30
563-58-6	1,1-Dichloropropene	ND		3.0	0.29
71-43-2	Benzene	ND		3.0	0.53
107-06-2	1,2-Dichloroethane	ND		2.0	0.53
79-01-6	Trichloroethene	ND		3.0	0.85
78-87-5	1,2-Dichloropropane	ND		1.0	0.18
74-95-3	Dibromomethane	ND		2.0	0.34
75-27-4	Bromodichloromethane	ND		2.0	0.14
10061-01-5	cis-1,3-Dichloropropene	ND		1.0	0.20
108-88-3	Toluene	ND		2.0	0.39
10061-02-6	trans-1,3-Dichloropropene	ND		1.0	0.16
79-00-5	1,1,2-Trichloroethane	ND		1.0	0.24
127-18-4	Tetrachloroethene	ND		3.0	0.41
142-28-9	1,3-Dichloropropane	ND		2.0	0.35
124-48-1	Dibromochloromethane	ND		1.0	0.20
106-93-4	1,2-Dibromoethane	ND		2.0	0.40
108-90-7	Chlorobenzene	ND		2.0	0.44
100-41-4	Ethylbenzene	ND		3.0	0.50
630-20-6	1,1,1,2-Tetrachloroethane	ND		2.0	0.18
79-34-5	1,1,2,2-Tetrachloroethane	ND		3.0	0.52
179601-23-1	m-Xylene & p-Xylene	ND		3.0	0.75



FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82662-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111407 Lab Sample ID: 580-82662-7  
 Matrix: Water Lab File ID: L1918013.D  
 Analysis Method: 8260C Date Collected: 12/11/2018 07:00  
 Sample wt/vol: 5(mL) Date Analyzed: 12/19/2018 14:54  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: DB-VRX ID: 0.25 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 291539 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
95-47-6	o-Xylene	ND		2.0	0.15
100-42-5	Styrene	ND		5.0	0.51
75-25-2	Bromoform	ND		3.0	0.56
98-82-8	Isopropylbenzene	ND		2.0	0.51
108-86-1	Bromobenzene	ND		2.0	0.18
103-65-1	N-Propylbenzene	ND		3.0	0.50
96-18-4	1,2,3-Trichloropropane	ND		2.0	0.41
95-49-8	2-Chlorotoluene	ND		3.0	0.51
108-67-8	1,3,5-Trimethylbenzene	ND		3.0	0.55
106-43-4	4-Chlorotoluene	ND		2.0	0.51
98-06-6	t-Butylbenzene	ND		3.0	0.58
95-63-6	1,2,4-Trimethylbenzene	ND		3.0	0.61
135-98-8	sec-Butylbenzene	ND		3.0	0.49
541-73-1	1,3-Dichlorobenzene	ND		2.0	0.18
99-87-6	4-Isopropyltoluene	ND		3.0	0.28
106-46-7	1,4-Dichlorobenzene	ND		4.0	0.98
104-51-8	n-Butylbenzene	ND		3.0	0.44
95-50-1	1,2-Dichlorobenzene	ND		2.0	0.46
96-12-8	1,2-Dibromo-3-Chloropropane	ND		10	1.8
120-82-1	1,2,4-Trichlorobenzene	ND		2.0	0.33
87-61-6	1,2,3-Trichlorobenzene	ND		5.0	0.46
87-68-3	Hexachlorobutadiene	ND		6.0	0.79
91-20-3	Naphthalene	ND		4.0	0.93
1634-04-4	Methyl tert-butyl ether	ND		2.0	0.44

CAS NO.	SURROGATE	%REC	Q	LIMITS
2037-26-5	Toluene-d8 (Surr)	104		80-122
460-00-4	4-Bromofluorobenzene (Surr)	99		80-125
1868-53-7	Dibromofluoromethane (Surr)	102		77-120
98-08-8	Trifluorotoluene (Surr)	99		80-120
17060-07-0	1,2-Dichloroethane-d4 (Surr)	107		80-126



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### MEMORANDUM

DATE: January 7, 2019

TO: Steve Hall, START-IV Project Manager, E & E, Seattle, Washington

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington *MW*

SUBJ: **Organic Data Quality Assurance Review, May Creek Removal Action Site, Renton, Washington**

REF: TO: TO-68HE0718F0470 PAN: 1004530.0470.001.01

The data quality assurance review of six water samples collected from the May Creek Removal Action site located in Renton, Washington, has been completed. Hydrocarbon Identification analysis (Ecology Method NWTPH-HCID) was performed by Test America, Inc., Tacoma, Washington. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Manual Process (S2B/4VM).

The samples were numbered:

18111408    18111409    18111410    18111411    18111412  
18111413

#### Data Qualifications:

**1. Sample Holding Times: Satisfactory.**

The samples were received within the QC limits of  $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ . The samples were collected on December 11, 2018, extracted by December 19, 2018, and analyzed by December 21, 2018, therefore generally meeting QC criteria of less than 14 days between collection and extraction for water samples and less than 40 days between extraction and analysis. Samples not extracted within 7 days of collection were qualified as estimated quantities with a low bias (JL or UJL). The method recommends to chemically preserve the samples in the field; the samples were chemically preserved in the laboratory.

**2. Calibration: Acceptable.**

Calculations were verified as correct.

**3. Blanks: Acceptable.**

A method blank was analyzed for each extraction batch for each matrix and analysis system. TPHs were not detected in the method blank.

**4. System Monitoring Compounds (SMC): Satisfactory.**

All recoveries of the SMCs were within QC limits except low BFB recoveries in samples



18111408, 18111408MS, 18111408MSD, and 18111411. According to the laboratory, evidence of matrix interference was present; therefore, no actions were taken.

**5. Matrix Spike (MS) Samples: Performed.**

MS and MS duplicate analyses were performed. No percent recovery limits were provided.

**6. Duplicates: Performed.**

Spike duplicate analysis was performed. No relative percent difference limits were provided.

**7. Quantitation and Quantitation Limits: Acceptable.**

Sample concentrations were correctly calculated.

**8. Laboratory Contact: Not Required.**

No laboratory contact was required.

**9. Overall Assessment of Data for Use**

A total of 12 results were validated in this data memorandum. A total of three results were qualified as estimated quantities (J) based on holding time outliers. No sample results were qualified as estimated quantities (J) based on duplicate precision outliers, incorrect sample containers, or sample temperature outliers. No sample results were rejected (R).

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the analytical method(s), the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, and/or the Office of Emergency and Remedial Response Publication "National Functional Guidelines for Superfund Organic Methods Data Review, January 2017". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

- J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
- Q - Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.
- R - The data is rejected and unusable. The analyte may or may not be present in the sample.
- U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.



FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82664-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111408 Lab Sample ID: 580-82664-1  
 Matrix: Water Lab File ID: 112B2601.D  
 Analysis Method: NWTPH-HCID Date Collected: 12/11/2018 14:37  
 Extraction Method: 3510C Date Extracted: 12/18/2018 08:00  
 Sample wt/vol: 910.6(mL) Date Analyzed: 12/20/2018 00:10  
 Con. Extract Vol.: 1(mL) Dilution Factor: 1  
 Injection Volume: 2(uL) GC Column: ZB-1HT ID: 0.25 (mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 291546 Units: mg/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	RL
STL00299	Motor Oil	0.21		0.11	0.11
STL00228	Gasoline	<del>ND</del>		0.022	0.022
STL00096	#2 Diesel (>C12-C24)	0.078		0.055	0.055

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	74		50-150
460-00-4	4-Bromofluorobenzene (Surr)	47	<del>X</del>	50-150

FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82664-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111409 Lab Sample ID: 580-82664-2  
 Matrix: Water Lab File ID: 115B2901.D  
 Analysis Method: NWTPH-HCID Date Collected: 12/11/2018 15:00  
 Extraction Method: 3510C Date Extracted: 12/18/2018 08:00  
 Sample wt/vol: 1055.2(mL) Date Analyzed: 12/20/2018 01:15  
 Con. Extract Vol.: 1(mL) Dilution Factor: 5  
 Injection Volume: 2(uL) GC Column: ZB-1HT ID: 0.25(mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 291546 Units: mg/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	RL
STL00299	Motor Oil	1.2		0.47	0.47
STL00228	Gasoline	0.13		0.095	0.095
STL00096	#2 Diesel (>C12-C24)	0.39		0.24	0.24

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	83		50-150
460-00-4	4-Bromofluorobenzene (Surr)	74		50-150

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FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82664-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111410 Lab Sample ID: 580-82664-3  
 Matrix: Water Lab File ID: 116B3001.D  
 Analysis Method: NWTPH-HCID Date Collected: 12/11/2018 13:36  
 Extraction Method: 3510C Date Extracted: 12/18/2018 08:00  
 Sample wt/vol: 895.3(mL) Date Analyzed: 12/20/2018 01:37  
 Con. Extract Vol.: 1(mL) Dilution Factor: 1  
 Injection Volume: 2(uL) GC Column: ZB-1HT ID: 0.25 (mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 291546 Units: mg/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	RL
STL00299	Motor Oil	0.18		0.11	0.11
STL00228	Gasoline	<del>0.18</del>		0.022	0.022
STL00096	#2 Diesel (>C12-C24)	0.097		0.056	0.056

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	76		50-150
460-00-4	4-Bromofluorobenzene (Surr)	51		50-150

FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82664-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111411 Lab Sample ID: 580-82664-4  
 Matrix: Water Lab File ID: 117B3101.D  
 Analysis Method: NWTPH-HCID Date Collected: 12/11/2018 14:00  
 Extraction Method: 3510C Date Extracted: 12/18/2018 08:00  
 Sample wt/vol: 974.4 (mL) Date Analyzed: 12/20/2018 01:58  
 Con. Extract Vol.: 1 (mL) Dilution Factor: 1  
 Injection Volume: 2 (uL) GC Column: ZB-1HT ID: 0.25 (mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 291546 Units: mg/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	RL
STL00299	Motor Oil	0.26		0.10	0.10
STL00228	Gasoline	<del>ND</del>		0.021	0.021
STL00096	#2 Diesel (>C12-C24)	0.13		0.051	0.051

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	65		50-150
460-00-4	4-Bromofluorobenzene (Surr)	44		50-150

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FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82664-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111413 Lab Sample ID: 580-82664-6  
 Matrix: Water Lab File ID: 106F0701.D  
 Analysis Method: NWTPH-HCID Date Collected: 12/11/2018 13:22  
 Extraction Method: 3510C Date Extracted: 12/19/2018 11:13  
 Sample wt/vol: 1028.3(mL) Date Analyzed: 12/21/2018 13:51  
 Con. Extract Vol.: 1.0(mL) Dilution Factor: 1  
 Injection Volume: 2(uL) GC Column: ZB-1HT ID: 0.25 (mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 291635 Units: mg/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	RL
STL00299	Motor Oil	ND <i>hw</i>		0.097	<i>0.097</i>
STL00228	Gasoline	0.019	<i>JL</i>	0.019	0.019
STL00096	#2 Diesel (>C12-C24)	0.054	<i>JL</i>	0.049	0.049

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	74		50-150
460-00-4	4-Bromofluorobenzene (Surr)	66		50-150

FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Seattle</u>	Job No.: <u>580-82664-1</u>
SDG No.: _____	
Client Sample ID: <u>18111412</u>	Lab Sample ID: <u>580-82664-5</u>
Matrix: <u>Water</u>	Lab File ID: <u>118B3201.D</u>
Analysis Method: <u>NWTPH-HCID</u>	Date Collected: <u>12/11/2018 13:11</u>
Extraction Method: <u>3510C</u>	Date Extracted: <u>12/18/2018 08:00</u>
Sample wt/vol: <u>904.7 (mL)</u>	Date Analyzed: <u>12/20/2018 02:20</u>
Con. Extract Vol.: <u>1 (mL)</u>	Dilution Factor: <u>2</u>
Injection Volume: <u>2 (uL)</u>	GC Column: <u>ZB-1HT</u> ID: <u>0.25 (mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>291546</u>	Units: <u>mg/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	RL	RL
STL00299	Motor Oil	0.75		0.22	0.22
STL00228	Gasoline	<del>ND</del> <i>W</i>		0.044	<i>U</i> 0.044
STL00096	#2 Diesel (>C12-C24)	0.14		0.11	0.11

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	71		50-150
460-00-4	4-Bromofluorobenzene (Surr)	51		50-150



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### MEMORANDUM

DATE: January 7, 2019

TO: Steve Hall, START-IV Project Manager, E & E, Seattle, Washington

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington

SUBJ: **Organic Data Quality Assurance Review, May Creek Removal Action Site, Renton, Washington**

REF: TO: TO-68HE0718F0470 PAN: 1004530.0470.001.01

The data quality assurance review of seven water samples collected from the May Creek Removal Action site in Renton, Washington, has been completed. Volatile Organic Compound (VOC) analysis (EPA Method 8260) was performed by Test America, Inc., Tacoma, Washington. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Manual Process (S2B/4VM).

The samples were numbered:

18111408	18111409	18111410	18111411	18111412
18111413	18111414			

#### Data Qualifications:

##### 1. **Sample Holding Times: Acceptable.**

The samples were maintained within the QC limits of  $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ . No actions were taken based on this information. The samples were collected on December 11, 2018, were received at the laboratory on December 13, 2018, and were analyzed by December 19, 2018. The samples met QC criteria of less than 14 days between collection and analysis for preserved water samples.

##### 2. **Tuning: Acceptable.**

Tuning was performed at the beginning of each 12-hour analysis sequence. All results were within QC limits.

##### 3. **Initial Calibration: Satisfactory.**

All average Relative Response Factors (RRFs) were within the QC limits. All Relative Standard Deviations (RSDs) and/or correlation coefficients were within the QC limits except chloroethane; associated sample quantitation limits were rejected (R).

##### 4. **Continuing Calibration: Satisfactory.**

All RRFs were within the QC limits except chloroethane; no additional actions were taken based on this outlier. All % differences were within the QC limits except a high bromoform recovery associated with samples 18111408, 18111409, 18111410, 18111411, 18111412, and 18111413; no actions were taken as this analyte was not detected in the associated samples.



**5. Blanks: Acceptable.**

A method blank was analyzed for each 20 sample batch per matrix. There were no detections in any method blank. There were no detections in the trip blank.

**6. System Monitoring Compounds (SMCs): Acceptable.**

All SMC recoveries were within QC limits.

**7. Blank Spike (BS)/BS Duplicate (BSD) Analysis: Satisfactory.**

BS and BSD analyses were performed per SDG or per matrix per concentration level, whichever was more frequent. All recoveries were within QC limits except bromoform and dibromochloromethane failed the recovery criteria high. These recoveries were biased high and were not detected in the associated samples; therefore, no actions were taken.

**8. Spike Duplicate Analysis: Satisfactory.**

Spike duplicate analyses were performed per SDG or per matrix per concentration level, whichever was more frequent. All spike duplicate results were within QC limits except bromoform, cis-1,3-dichloropropene, dibromochloromethane and trans-1,3-dichloropropene failed in the MS/MSD and 1,2,3-trichlorobenzene and naphthalene exceeded the BS/BSD RPD limit. No actions were taken based on these duplicate outliers alone.

**9. Internal Standards: Acceptable.**

All internal standards were within  $\pm 30$  seconds of the continuing calibration internal standard retention times. All area counts were within 50 % to 200 % of the continuing calibration area counts.

**10. Performance Evaluation Sample Analysis: Not Provided.**

Performance evaluation samples were not provided to the laboratory.

**11. Overall Assessment of Data for Use**

A total of 300 results were validated in this data memorandum. No sample results were qualified as estimated quantities (J) based on duplicate precision outliers, spike accuracy outliers, holding time outliers, incorrect sample containers, or sample temperature outliers. No sample results were rejected (R).

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the analytical method(s), the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, and/or the Office of Emergency and Remedial Response Publication "National Functional Guidelines for Superfund Organic Methods Data Review, January 2017". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

H - The sample result is biased high.

J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.





- K - The bias of the sample is not known.
- L - The sample result is biased low.
- N - The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification".
- NJ - The analyte has been "tentatively identified" or "presumptively" as present and the associated numerical value is the estimated concentration in the sample.
- Q - Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.
- R - The data is rejected and unusable. The analyte may or may not be present in the sample.
- U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.



FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82664-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111408 Lab Sample ID: 580-82664-1  
 Matrix: Water Lab File ID: L1918014.D  
 Analysis Method: 8260C Date Collected: 12/11/2018 14:37  
 Sample wt/vol: 5(mL) Date Analyzed: 12/19/2018 15:19  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: DB-VRX ID: 0.25 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 291539 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-71-8	Dichlorodifluoromethane	ND		10	2.3
74-87-3	Chloromethane	ND		20	5.4
75-01-4	Vinyl chloride	ND		1.0	0.22
74-83-9	Bromomethane	ND		6.0	1.1
75-00-3	Chloroethane	ND		5.0	1.1
75-69-4	Trichlorofluoromethane	ND		3.0	0.63
75-35-4	1,1-Dichloroethene	ND		4.0	0.78
75-09-2	Methylene Chloride	ND		5.0	1.4
156-60-5	trans-1,2-Dichloroethene	ND		3.0	0.39
75-34-3	1,1-Dichloroethane	ND		2.0	0.22
594-20-7	2,2-Dichloropropane	ND		3.0	0.32
156-59-2	cis-1,2-Dichloroethene	ND		3.0	0.69
74-97-5	Bromochloromethane	ND		2.0	0.29
67-66-3	Chloroform	ND		5.0	0.50
71-55-6	1,1,1-Trichloroethane	ND		3.0	0.14
56-23-5	Carbon tetrachloride	ND		3.0	0.30
563-58-6	1,1-Dichloropropene	ND		3.0	0.29
71-43-2	Benzene	ND		3.0	0.53
107-06-2	1,2-Dichloroethane	ND		2.0	0.53
79-01-6	Trichloroethene	ND		3.0	0.85
78-87-5	1,2-Dichloropropane	ND		1.0	0.18
74-95-3	Dibromomethane	ND		2.0	0.34
75-27-4	Bromodichloromethane	ND		2.0	0.14
10061-01-5	cis-1,3-Dichloropropene	ND	F1	1.0	0.20
108-88-3	Toluene	ND		2.0	0.39
10061-02-6	trans-1,3-Dichloropropene	ND	F1	1.0	0.16
79-00-5	1,1,2-Trichloroethane	ND		1.0	0.24
127-18-4	Tetrachloroethene	ND		3.0	0.41
142-28-9	1,3-Dichloropropane	ND		2.0	0.35
124-48-1	Dibromochloromethane	ND	F1	1.0	0.20
106-93-4	1,2-Dibromoethane	ND		2.0	0.40
108-90-7	Chlorobenzene	ND		2.0	0.44
100-41-4	Ethylbenzene	ND		3.0	0.50
630-20-6	1,1,1,2-Tetrachloroethane	ND		2.0	0.18
79-34-5	1,1,2,2-Tetrachloroethane	ND		3.0	0.52
179601-23-1	m-Xylene & p-Xylene	ND		3.0	0.75

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82664-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111408 Lab Sample ID: 580-82664-1  
 Matrix: Water Lab File ID: L1918014.D  
 Analysis Method: 8260C Date Collected: 12/11/2018 14:37  
 Sample wt/vol: 5(mL) Date Analyzed: 12/19/2018 15:19  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: DB-VRX ID: 0.25(mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 291539 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
95-47-6	o-Xylene	ND		2.0	0.15
100-42-5	Styrene	ND		5.0	0.51
75-25-2	Bromoform	ND	<del>FW</del>	3.0	0.56
98-82-8	Isopropylbenzene	ND		2.0	0.51
108-86-1	Bromobenzene	ND		2.0	0.18
103-65-1	N-Propylbenzene	ND		3.0	0.50
96-18-4	1,2,3-Trichloropropane	ND		2.0	0.41
95-49-8	2-Chlorotoluene	ND		3.0	0.51
108-67-8	1,3,5-Trimethylbenzene	ND		3.0	0.55
106-43-4	4-Chlorotoluene	ND		2.0	0.51
98-06-6	t-Butylbenzene	ND		3.0	0.58
95-63-6	1,2,4-Trimethylbenzene	ND		3.0	0.61
135-98-8	sec-Butylbenzene	ND		3.0	0.49
541-73-1	1,3-Dichlorobenzene	ND		2.0	0.18
99-87-6	4-Isopropyltoluene	ND		3.0	0.28
106-46-7	1,4-Dichlorobenzene	ND		4.0	0.98
104-51-8	n-Butylbenzene	ND		3.0	0.44
95-50-1	1,2-Dichlorobenzene	ND		2.0	0.46
96-12-8	1,2-Dibromo-3-Chloropropane	ND		10	1.8
120-82-1	1,2,4-Trichlorobenzene	ND		2.0	0.33
87-61-6	1,2,3-Trichlorobenzene	ND	*	5.0	0.46
87-68-3	Hexachlorobutadiene	ND		6.0	0.79
91-20-3	Naphthalene	ND	<del>FW</del>	4.0	0.93
1634-04-4	Methyl tert-butyl ether	ND		2.0	0.44

CAS NO.	SURROGATE	%REC	Q	LIMITS
2037-26-5	Toluene-d8 (Surr)	103		80-122
460-00-4	4-Bromofluorobenzene (Surr)	101		80-125
1868-53-7	Dibromofluoromethane (Surr)	98		77-120
98-08-8	Trifluorotoluene (Surr)	99		80-120
17060-07-0	1,2-Dichloroethane-d4 (Surr)	107		80-126

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FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82664-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111409 Lab Sample ID: 580-82664-2  
 Matrix: Water Lab File ID: L1918017.D  
 Analysis Method: 8260C Date Collected: 12/11/2018 15:00  
 Sample wt/vol: 5(mL) Date Analyzed: 12/19/2018 16:34  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: DB-VRX ID: 0.25(mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 291539 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-71-8	Dichlorodifluoromethane	ND		10	2.3
74-87-3	Chloromethane	ND		20	5.4
75-01-4	Vinyl chloride	ND		1.0	0.22
74-83-9	Bromomethane	ND		6.0	1.1
75-00-3	Chloroethane	ND		5.0	1.1
75-69-4	Trichlorofluoromethane	ND		3.0	0.63
75-35-4	1,1-Dichloroethene	ND		4.0	0.78
75-09-2	Methylene Chloride	ND		5.0	1.4
156-60-5	trans-1,2-Dichloroethene	ND		3.0	0.39
75-34-3	1,1-Dichloroethane	ND		2.0	0.22
594-20-7	2,2-Dichloropropane	ND		3.0	0.32
156-59-2	cis-1,2-Dichloroethene	ND		3.0	0.69
74-97-5	Bromochloromethane	ND		2.0	0.29
67-66-3	Chloroform	ND		5.0	0.50
71-55-6	1,1,1-Trichloroethane	ND		3.0	0.14
56-23-5	Carbon tetrachloride	ND		3.0	0.30
563-58-6	1,1-Dichloropropene	ND		3.0	0.29
71-43-2	Benzene	ND		3.0	0.53
107-06-2	1,2-Dichloroethane	ND		2.0	0.53
79-01-6	Trichloroethene	ND		3.0	0.85
78-87-5	1,2-Dichloropropane	ND		1.0	0.18
74-95-3	Dibromomethane	ND		2.0	0.34
75-27-4	Bromodichloromethane	ND		2.0	0.14
10061-01-5	cis-1,3-Dichloropropene	ND		1.0	0.20
108-88-3	Toluene	ND		2.0	0.39
10061-02-6	trans-1,3-Dichloropropene	ND		1.0	0.16
79-00-5	1,1,2-Trichloroethane	ND		1.0	0.24
127-18-4	Tetrachloroethene	ND		3.0	0.41
142-28-9	1,3-Dichloropropane	ND		2.0	0.35
124-48-1	Dibromochloromethane	ND		1.0	0.20
106-93-4	1,2-Dibromoethane	ND		2.0	0.40
108-90-7	Chlorobenzene	ND		2.0	0.44
100-41-4	Ethylbenzene	ND		3.0	0.50
630-20-6	1,1,1,2-Tetrachloroethane	ND		2.0	0.18
79-34-5	1,1,2,2-Tetrachloroethane	ND		3.0	0.52
179601-23-1	m-Xylene & p-Xylene	ND		3.0	0.75

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82664-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111409 Lab Sample ID: 580-82664-2  
 Matrix: Water Lab File ID: L1918017.D  
 Analysis Method: 8260C Date Collected: 12/11/2018 15:00  
 Sample wt/vol: 5(mL) Date Analyzed: 12/19/2018 16:34  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: DB-VRX ID: 0.25(mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 291539 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
95-47-6	o-Xylene	ND		2.0	0.15
100-42-5	Styrene	ND		5.0	0.51
75-25-2	Bromoform	ND		3.0	0.56
98-82-8	Isopropylbenzene	ND		2.0	0.51
108-86-1	Bromobenzene	ND		2.0	0.18
103-65-1	N-Propylbenzene	ND		3.0	0.50
96-18-4	1,2,3-Trichloropropane	ND		2.0	0.41
95-49-8	2-Chlorotoluene	ND		3.0	0.51
108-67-8	1,3,5-Trimethylbenzene	ND		3.0	0.55
106-43-4	4-Chlorotoluene	ND		2.0	0.51
98-06-6	t-Butylbenzene	ND		3.0	0.58
95-63-6	1,2,4-Trimethylbenzene	ND		3.0	0.61
135-98-8	sec-Butylbenzene	ND		3.0	0.49
541-73-1	1,3-Dichlorobenzene	ND		2.0	0.18
99-87-6	4-Isopropyltoluene	ND		3.0	0.28
106-46-7	1,4-Dichlorobenzene	ND		4.0	0.98
104-51-8	n-Butylbenzene	ND		3.0	0.44
95-50-1	1,2-Dichlorobenzene	ND		2.0	0.46
96-12-8	1,2-Dibromo-3-Chloropropane	ND		10	1.8
120-82-1	1,2,4-Trichlorobenzene	ND		2.0	0.33
87-61-6	1,2,3-Trichlorobenzene	ND		5.0	0.46
87-68-3	Hexachlorobutadiene	ND		6.0	0.79
91-20-3	Naphthalene	ND		4.0	0.93
1634-04-4	Methyl tert-butyl ether	ND		2.0	0.44

CAS NO.	SURROGATE	%REC	Q	LIMITS
2037-26-5	Toluene-d8 (Surr)	106		80-122
460-00-4	4-Bromofluorobenzene (Surr)	104		80-125
1868-53-7	Dibromofluoromethane (Surr)	101		77-120
98-08-8	Trifluorotoluene (Surr)	99		80-120
17060-07-0	1,2-Dichloroethane-d4 (Surr)	109		80-126

*me* 1-7-19



FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82664-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111410 Lab Sample ID: 580-82664-3  
 Matrix: Water Lab File ID: L1918018.D  
 Analysis Method: 8260C Date Collected: 12/11/2018 13:36  
 Sample wt/vol: 5(mL) Date Analyzed: 12/19/2018 16:59  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: DB-VRX ID: 0.25 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 291539 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-71-8	Dichlorodifluoromethane	ND		10	2.3
74-87-3	Chloromethane	ND		20	5.4
75-01-4	Vinyl chloride	ND		1.0	0.22
74-83-9	Bromomethane	ND		6.0	1.1
75-00-3	Chloroethane	ND		5.0	1.1
75-69-4	Trichlorofluoromethane	ND		3.0	0.63
75-35-4	1,1-Dichloroethene	ND		4.0	0.78
75-09-2	Methylene Chloride	ND		5.0	1.4
156-60-5	trans-1,2-Dichloroethene	ND		3.0	0.39
75-34-3	1,1-Dichloroethane	ND		2.0	0.22
594-20-7	2,2-Dichloropropane	ND		3.0	0.32
156-59-2	cis-1,2-Dichloroethene	ND		3.0	0.69
74-97-5	Bromochloromethane	ND		2.0	0.29
67-66-3	Chloroform	ND		5.0	0.50
71-55-6	1,1,1-Trichloroethane	ND		3.0	0.14
56-23-5	Carbon tetrachloride	ND		3.0	0.30
563-58-6	1,1-Dichloropropene	ND		3.0	0.29
71-43-2	Benzene	ND		3.0	0.53
107-06-2	1,2-Dichloroethane	ND		2.0	0.53
79-01-6	Trichloroethene	ND		3.0	0.85
78-87-5	1,2-Dichloropropane	ND		1.0	0.18
74-95-3	Dibromomethane	ND		2.0	0.34
75-27-4	Bromodichloromethane	ND		2.0	0.14
10061-01-5	cis-1,3-Dichloropropene	ND		1.0	0.20
108-88-3	Toluene	ND		2.0	0.39
10061-02-6	trans-1,3-Dichloropropene	ND		1.0	0.16
79-00-5	1,1,2-Trichloroethane	ND		1.0	0.24
127-18-4	Tetrachloroethene	ND		3.0	0.41
142-28-9	1,3-Dichloropropane	ND		2.0	0.35
124-48-1	Dibromochloromethane	ND		1.0	0.20
106-93-4	1,2-Dibromoethane	ND		2.0	0.40
108-90-7	Chlorobenzene	ND		2.0	0.44
100-41-4	Ethylbenzene	ND		3.0	0.50
630-20-6	1,1,1,2-Tetrachloroethane	ND		2.0	0.18
79-34-5	1,1,2,2-Tetrachloroethane	ND		3.0	0.52
179601-23-1	m-Xylene & p-Xylene	ND		3.0	0.75

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82664-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111410 Lab Sample ID: 580-82664-3  
 Matrix: Water Lab File ID: L1918018.D  
 Analysis Method: 8260C Date Collected: 12/11/2018 13:36  
 Sample wt/vol: 5 (mL) Date Analyzed: 12/19/2018 16:59  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: DB-VRX ID: 0.25 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 291539 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
95-47-6	o-Xylene	ND		2.0	0.15
100-42-5	Styrene	ND		5.0	0.51
75-25-2	Bromoform	ND	low	3.0	0.56
98-82-8	Isopropylbenzene	ND		2.0	0.51
108-86-1	Bromobenzene	ND		2.0	0.18
103-65-1	N-Propylbenzene	ND		3.0	0.50
96-18-4	1,2,3-Trichloropropane	ND		2.0	0.41
95-49-8	2-Chlorotoluene	ND		3.0	0.51
108-67-8	1,3,5-Trimethylbenzene	ND		3.0	0.55
106-43-4	4-Chlorotoluene	ND		2.0	0.51
98-06-6	t-Butylbenzene	ND		3.0	0.58
95-63-6	1,2,4-Trimethylbenzene	ND		3.0	0.61
135-98-8	sec-Butylbenzene	ND		3.0	0.49
541-73-1	1,3-Dichlorobenzene	ND		2.0	0.18
99-87-6	4-Isopropyltoluene	ND		3.0	0.28
106-46-7	1,4-Dichlorobenzene	ND		4.0	0.98
104-51-8	n-Butylbenzene	ND		3.0	0.44
95-50-1	1,2-Dichlorobenzene	ND		2.0	0.46
96-12-8	1,2-Dibromo-3-Chloropropane	ND		10	1.8
120-82-1	1,2,4-Trichlorobenzene	ND		2.0	0.33
87-61-6	1,2,3-Trichlorobenzene	ND		5.0	0.46
87-68-3	Hexachlorobutadiene	ND		6.0	0.79
91-20-3	Naphthalene	ND	low	4.0	0.93
1634-04-4	Methyl tert-butyl ether	ND		2.0	0.44

CAS NO.	SURROGATE	%REC	Q	LIMITS
2037-26-5	Toluene-d8 (Surr)	105		80-122
460-00-4	4-Bromofluorobenzene (Surr)	99		80-125
1868-53-7	Dibromofluoromethane (Surr)	99		77-120
98-08-8	Trifluorotoluene (Surr)	100		80-120
17060-07-0	1,2-Dichloroethane-d4 (Surr)	105		80-126

*MW 1719*

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82664-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111411 Lab Sample ID: 580-82664-4  
 Matrix: Water Lab File ID: L1918019.D  
 Analysis Method: 8260C Date Collected: 12/11/2018 14:00  
 Sample wt/vol: 5(mL) Date Analyzed: 12/19/2018 17:24  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: DB-VRX ID: 0.25 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 291539 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-71-8	Dichlorodifluoromethane	ND		10	2.3
74-87-3	Chloromethane	ND		20	5.4
75-01-4	Vinyl chloride	ND		1.0	0.22
74-83-9	Bromomethane	ND		6.0	1.1
75-00-3	Chloroethane	ND		5.0	1.1
75-69-4	Trichlorofluoromethane	ND		3.0	0.63
75-35-4	1,1-Dichloroethene	ND		4.0	0.78
75-09-2	Methylene Chloride	ND		5.0	1.4
156-60-5	trans-1,2-Dichloroethene	ND		3.0	0.39
75-34-3	1,1-Dichloroethane	ND		2.0	0.22
594-20-7	2,2-Dichloropropane	ND		3.0	0.32
156-59-2	cis-1,2-Dichloroethene	ND		3.0	0.69
74-97-5	Bromochloromethane	ND		2.0	0.29
67-66-3	Chloroform	ND		5.0	0.50
71-55-6	1,1,1-Trichloroethane	ND		3.0	0.14
56-23-5	Carbon tetrachloride	ND		3.0	0.30
563-58-6	1,1-Dichloropropene	ND		3.0	0.29
71-43-2	Benzene	ND		3.0	0.53
107-06-2	1,2-Dichloroethane	ND		2.0	0.53
79-01-6	Trichloroethene	ND		3.0	0.85
78-87-5	1,2-Dichloropropane	ND		1.0	0.18
74-95-3	Dibromomethane	ND		2.0	0.34
75-27-4	Bromodichloromethane	ND		2.0	0.14
10061-01-5	cis-1,3-Dichloropropene	ND		1.0	0.20
108-88-3	Toluene	ND		2.0	0.39
10061-02-6	trans-1,3-Dichloropropene	ND		1.0	0.16
79-00-5	1,1,2-Trichloroethane	ND		1.0	0.24
127-18-4	Tetrachloroethene	ND		3.0	0.41
142-28-9	1,3-Dichloropropane	ND		2.0	0.35
124-48-1	Dibromochloromethane	ND		1.0	0.20
106-93-4	1,2-Dibromoethane	ND		2.0	0.40
108-90-7	Chlorobenzene	ND		2.0	0.44
100-41-4	Ethylbenzene	ND		3.0	0.50
630-20-6	1,1,1,2-Tetrachloroethane	ND		2.0	0.18
79-34-5	1,1,2,2-Tetrachloroethane	ND		3.0	0.52
179601-23-1	m-Xylene & p-Xylene	ND		3.0	0.75

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82664-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111411 Lab Sample ID: 580-82664-4  
 Matrix: Water Lab File ID: L1918019.D  
 Analysis Method: 8260C Date Collected: 12/11/2018 14:00  
 Sample wt/vol: 5 (mL) Date Analyzed: 12/19/2018 17:24  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: DB-VRX ID: 0.25 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 291539 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
95-47-6	o-Xylene	ND		2.0	0.15
100-42-5	Styrene	ND		5.0	0.51
75-25-2	Bromoform	ND		3.0	0.56
98-82-8	Isopropylbenzene	ND		2.0	0.51
108-86-1	Bromobenzene	ND		2.0	0.18
103-65-1	N-Propylbenzene	ND		3.0	0.50
96-18-4	1,2,3-Trichloropropane	ND		2.0	0.41
95-49-8	2-Chlorotoluene	ND		3.0	0.51
108-67-8	1,3,5-Trimethylbenzene	ND		3.0	0.55
106-43-4	4-Chlorotoluene	ND		2.0	0.51
98-06-6	t-Butylbenzene	ND		3.0	0.58
95-63-6	1,2,4-Trimethylbenzene	ND		3.0	0.61
135-98-8	sec-Butylbenzene	ND		3.0	0.49
541-73-1	1,3-Dichlorobenzene	ND		2.0	0.18
99-87-6	4-Isopropyltoluene	ND		3.0	0.28
106-46-7	1,4-Dichlorobenzene	ND		4.0	0.98
104-51-8	n-Butylbenzene	ND		3.0	0.44
95-50-1	1,2-Dichlorobenzene	ND		2.0	0.46
96-12-8	1,2-Dibromo-3-Chloropropane	ND		10	1.8
120-82-1	1,2,4-Trichlorobenzene	ND		2.0	0.33
87-61-6	1,2,3-Trichlorobenzene	ND		5.0	0.46
87-68-3	Hexachlorobutadiene	ND		6.0	0.79
91-20-3	Naphthalene	ND		4.0	0.93
1634-04-4	Methyl tert-butyl ether	ND		2.0	0.44

CAS NO.	SURROGATE	%REC	Q	LIMITS
2037-26-5	Toluene-d8 (Surr)	104		80-122
460-00-4	4-Bromofluorobenzene (Surr)	100		80-125
1868-53-7	Dibromofluoromethane (Surr)	104		77-120
98-08-8	Trifluorotoluene (Surr)	99		80-120
17060-07-0	1,2-Dichloroethane-d4 (Surr)	107		80-126



FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82664-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111412 Lab Sample ID: 580-82664-5  
 Matrix: Water Lab File ID: L1918020.D  
 Analysis Method: 8260C Date Collected: 12/11/2018 13:11  
 Sample wt/vol: 5(mL) Date Analyzed: 12/19/2018 17:49  
 Soil Aliquot Vol.: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: DB-VRX ID: 0.25 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 291539 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-71-8	Dichlorodifluoromethane	ND		10	2.3
74-87-3	Chloromethane	ND		20	5.4
75-01-4	Vinyl chloride	ND		1.0	0.22
74-83-9	Bromomethane	ND		6.0	1.1
75-00-3	Chloroethane	ND		5.0	1.1
75-69-4	Trichlorofluoromethane	ND		3.0	0.63
75-35-4	1,1-Dichloroethene	ND		4.0	0.78
75-09-2	Methylene Chloride	ND		5.0	1.4
156-60-5	trans-1,2-Dichloroethene	ND		3.0	0.39
75-34-3	1,1-Dichloroethane	ND		2.0	0.22
594-20-7	2,2-Dichloropropane	ND		3.0	0.32
156-59-2	cis-1,2-Dichloroethene	ND		3.0	0.69
74-97-5	Bromochloromethane	ND		2.0	0.29
67-66-3	Chloroform	ND		5.0	0.50
71-55-6	1,1,1-Trichloroethane	ND		3.0	0.14
56-23-5	Carbon tetrachloride	ND		3.0	0.30
563-58-6	1,1-Dichloropropene	ND		3.0	0.29
71-43-2	Benzene	ND		3.0	0.53
107-06-2	1,2-Dichloroethane	ND		2.0	0.53
79-01-6	Trichloroethene	ND		3.0	0.85
78-87-5	1,2-Dichloropropane	ND		1.0	0.18
74-95-3	Dibromomethane	ND		2.0	0.34
75-27-4	Bromodichloromethane	ND		2.0	0.14
10061-01-5	cis-1,3-Dichloropropene	ND		1.0	0.20
108-88-3	Toluene	ND		2.0	0.39
10061-02-6	trans-1,3-Dichloropropene	ND		1.0	0.16
79-00-5	1,1,2-Trichloroethane	ND		1.0	0.24
127-18-4	Tetrachloroethene	ND		3.0	0.41
142-28-9	1,3-Dichloropropane	ND		2.0	0.35
124-48-1	Dibromochloromethane	ND		1.0	0.20
106-93-4	1,2-Dibromoethane	ND		2.0	0.40
108-90-7	Chlorobenzene	ND		2.0	0.44
100-41-4	Ethylbenzene	ND		3.0	0.50
630-20-6	1,1,1,2-Tetrachloroethane	ND		2.0	0.18
79-34-5	1,1,2,2-Tetrachloroethane	ND		3.0	0.52
179601-23-1	m-Xylene & p-Xylene	ND		3.0	0.75

*mw 1-7-19*

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82664-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111412 Lab Sample ID: 580-82664-5  
 Matrix: Water Lab File ID: L1918020.D  
 Analysis Method: 8260C Date Collected: 12/11/2018 13:11  
 Sample wt/vol: 5(mL) Date Analyzed: 12/19/2018 17:49  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: DB-VRX ID: 0.25(mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 291539 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
95-47-6	o-Xylene	ND		2.0	0.15
100-42-5	Styrene	ND		5.0	0.51
75-25-2	Bromoform	ND	hu	3.0	0.56
98-82-8	Isopropylbenzene	ND		2.0	0.51
108-86-1	Bromobenzene	ND		2.0	0.18
103-65-1	N-Propylbenzene	ND		3.0	0.50
96-18-4	1,2,3-Trichloropropane	ND		2.0	0.41
95-49-8	2-Chlorotoluene	ND		3.0	0.51
108-67-8	1,3,5-Trimethylbenzene	ND		3.0	0.55
106-43-4	4-Chlorotoluene	ND		2.0	0.51
98-06-6	t-Butylbenzene	ND		3.0	0.58
95-63-6	1,2,4-Trimethylbenzene	ND		3.0	0.61
135-98-8	sec-Butylbenzene	ND		3.0	0.49
541-73-1	1,3-Dichlorobenzene	ND		2.0	0.18
99-87-6	4-Isopropyltoluene	ND		3.0	0.28
106-46-7	1,4-Dichlorobenzene	ND		4.0	0.98
104-51-8	n-Butylbenzene	ND		3.0	0.44
95-50-1	1,2-Dichlorobenzene	ND		2.0	0.46
96-12-8	1,2-Dibromo-3-Chloropropane	ND		10	1.8
120-82-1	1,2,4-Trichlorobenzene	ND		2.0	0.33
87-61-6	1,2,3-Trichlorobenzene	ND		5.0	0.46
87-68-3	Hexachlorobutadiene	ND		6.0	0.79
91-20-3	Naphthalene	ND		4.0	0.93
1634-04-4	Methyl tert-butyl ether	ND		2.0	0.44

CAS NO.	SURROGATE	%REC	Q	LIMITS
2037-26-5	Toluene-d8 (Surr)	104		80-122
460-00-4	4-Bromofluorobenzene (Surr)	104		80-125
1868-53-7	Dibromofluoromethane (Surr)	98		77-120
98-08-8	Trifluorotoluene (Surr)	101		80-120
17060-07-0	1,2-Dichloroethane-d4 (Surr)	109		80-126

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82664-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111413 Lab Sample ID: 580-82664-6  
 Matrix: Water Lab File ID: L1918021.D  
 Analysis Method: 8260C Date Collected: 12/11/2018 13:22  
 Sample wt/vol: 5(mL) Date Analyzed: 12/19/2018 18:14  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: DB-VRX ID: 0.25(mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 291539 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-71-8	Dichlorodifluoromethane	ND		10	2.3
74-87-3	Chloromethane	ND		20	5.4
75-01-4	Vinyl chloride	ND		1.0	0.22
74-83-9	Bromomethane	ND		6.0	1.1
75-00-3	Chloroethane	ND		5.0	1.1
75-69-4	Trichlorofluoromethane	ND		3.0	0.63
75-35-4	1,1-Dichloroethene	ND		4.0	0.78
75-09-2	Methylene Chloride	ND		5.0	1.4
156-60-5	trans-1,2-Dichloroethene	ND		3.0	0.39
75-34-3	1,1-Dichloroethane	ND		2.0	0.22
594-20-7	2,2-Dichloropropane	ND		3.0	0.32
156-59-2	cis-1,2-Dichloroethene	ND		3.0	0.69
74-97-5	Bromochloromethane	ND		2.0	0.29
67-66-3	Chloroform	ND		5.0	0.50
71-55-6	1,1,1-Trichloroethane	ND		3.0	0.14
56-23-5	Carbon tetrachloride	ND		3.0	0.30
563-58-6	1,1-Dichloropropene	ND		3.0	0.29
71-43-2	Benzene	ND		3.0	0.53
107-06-2	1,2-Dichloroethane	ND		2.0	0.53
79-01-6	Trichloroethene	ND		3.0	0.85
78-87-5	1,2-Dichloropropane	ND		1.0	0.18
74-95-3	Dibromomethane	ND		2.0	0.34
75-27-4	Bromodichloromethane	ND		2.0	0.14
10061-01-5	cis-1,3-Dichloropropene	ND		1.0	0.20
108-88-3	Toluene	ND		2.0	0.39
10061-02-6	trans-1,3-Dichloropropene	ND		1.0	0.16
79-00-5	1,1,2-Trichloroethane	ND		1.0	0.24
127-18-4	Tetrachloroethene	ND		3.0	0.41
142-28-9	1,3-Dichloropropane	ND		2.0	0.35
124-48-1	Dibromochloromethane	ND		1.0	0.20
106-93-4	1,2-Dibromoethane	ND		2.0	0.40
108-90-7	Chlorobenzene	ND		2.0	0.44
100-41-4	Ethylbenzene	ND		3.0	0.50
630-20-6	1,1,1,2-Tetrachloroethane	ND		2.0	0.18
79-34-5	1,1,2,2-Tetrachloroethane	ND		3.0	0.52
179601-23-1	m-Xylene & p-Xylene	ND		3.0	0.75



FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle

Job No.: 580-82664-1

SDG No.: \_\_\_\_\_

Client Sample ID: 18111413

Lab Sample ID: 580-82664-6

Matrix: Water

Lab File ID: L1918021.D

Analysis Method: 8260C

Date Collected: 12/11/2018 13:22

Sample wt/vol: 5 (mL)

Date Analyzed: 12/19/2018 18:14

Soil Aliquot Vol: \_\_\_\_\_

Dilution Factor: 1

Soil Extract Vol.: \_\_\_\_\_

GC Column: DB-VRX ID: 0.25 (mm)

% Moisture: \_\_\_\_\_

Level: (low/med) Low

Analysis Batch No.: 291539

Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
95-47-6	o-Xylene	ND		2.0	0.15
100-42-5	Styrene	ND		5.0	0.51
75-25-2	Bromoform	ND	<i>low</i>	3.0	0.56
98-82-8	Isopropylbenzene	ND		2.0	0.51
108-86-1	Bromobenzene	ND		2.0	0.18
103-65-1	N-Propylbenzene	ND		3.0	0.50
96-18-4	1,2,3-Trichloropropane	ND		2.0	0.41
95-49-8	2-Chlorotoluene	ND		3.0	0.51
108-67-8	1,3,5-Trimethylbenzene	ND		3.0	0.55
106-43-4	4-Chlorotoluene	ND		2.0	0.51
98-06-6	t-Butylbenzene	ND		3.0	0.58
95-63-6	1,2,4-Trimethylbenzene	ND		3.0	0.61
135-98-8	sec-Butylbenzene	ND		3.0	0.49
541-73-1	1,3-Dichlorobenzene	ND		2.0	0.18
99-87-6	4-Isopropyltoluene	ND		3.0	0.28
106-46-7	1,4-Dichlorobenzene	ND		4.0	0.98
104-51-8	n-Butylbenzene	ND		3.0	0.44
95-50-1	1,2-Dichlorobenzene	ND		2.0	0.46
96-12-8	1,2-Dibromo-3-Chloropropane	ND		10	1.8
120-82-1	1,2,4-Trichlorobenzene	ND		2.0	0.33
87-61-6	1,2,3-Trichlorobenzene	ND		5.0	0.46
87-68-3	Hexachlorobutadiene	ND		6.0	0.79
91-20-3	Naphthalene	ND	<i>low</i>	4.0	0.93
1634-04-4	Methyl tert-butyl ether	ND		2.0	0.44

CAS NO.	SURROGATE	%REC	Q	LIMITS
2037-26-5	Toluene-d8 (Surr)	103		80-122
460-00-4	4-Bromofluorobenzene (Surr)	101		80-125
1868-53-7	Dibromofluoromethane (Surr)	99		77-120
98-08-8	Trifluorotoluene (Surr)	99		80-120
17060-07-0	1,2-Dichloroethane-d4 (Surr)	107		80-126

*mw 17-19*

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82664-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111414 Lab Sample ID: 580-82664-7  
 Matrix: Water Lab File ID: L1918022.D  
 Analysis Method: 8260C Date Collected: 12/12/2018 00:01  
 Sample wt/vol: 5(mL) Date Analyzed: 12/19/2018 18:39  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: DB-VRX ID: 0.25 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 291539 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-71-8	Dichlorodifluoromethane	ND		10	2.3
74-87-3	Chloromethane	ND		20	5.4
75-01-4	Vinyl chloride	ND		1.0	0.22
74-83-9	Bromomethane	ND		6.0	1.1
75-00-3	Chloroethane	ND		5.0	1.1
75-69-4	Trichlorofluoromethane	ND		3.0	0.63
75-35-4	1,1-Dichloroethene	ND		4.0	0.78
75-09-2	Methylene Chloride	ND		5.0	1.4
156-60-5	trans-1,2-Dichloroethene	ND		3.0	0.39
75-34-3	1,1-Dichloroethane	ND		2.0	0.22
594-20-7	2,2-Dichloropropane	ND		3.0	0.32
156-59-2	cis-1,2-Dichloroethene	ND		3.0	0.69
74-97-5	Bromochloromethane	ND		2.0	0.29
67-66-3	Chloroform	ND		5.0	0.50
71-55-6	1,1,1-Trichloroethane	ND		3.0	0.14
56-23-5	Carbon tetrachloride	ND		3.0	0.30
563-58-6	1,1-Dichloropropene	ND		3.0	0.29
71-43-2	Benzene	ND		3.0	0.53
107-06-2	1,2-Dichloroethane	ND		2.0	0.53
79-01-6	Trichloroethene	ND		3.0	0.85
78-87-5	1,2-Dichloropropane	ND		1.0	0.18
74-95-3	Dibromomethane	ND		2.0	0.34
75-27-4	Bromodichloromethane	ND		2.0	0.14
10061-01-5	cis-1,3-Dichloropropene	ND		1.0	0.20
108-88-3	Toluene	ND		2.0	0.39
10061-02-6	trans-1,3-Dichloropropene	ND		1.0	0.16
79-00-5	1,1,2-Trichloroethane	ND		1.0	0.24
127-18-4	Tetrachloroethene	ND		3.0	0.41
142-28-9	1,3-Dichloropropane	ND		2.0	0.35
124-48-1	Dibromochloromethane	ND		1.0	0.20
106-93-4	1,2-Dibromoethane	ND		2.0	0.40
108-90-7	Chlorobenzene	ND		2.0	0.44
100-41-4	Ethylbenzene	ND		3.0	0.50
630-20-6	1,1,1,2-Tetrachloroethane	ND		2.0	0.18
79-34-5	1,1,2,2-Tetrachloroethane	ND		3.0	0.52
179601-23-1	m-Xylene & p-Xylene	ND		3.0	0.75

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FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82664-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111414 Lab Sample ID: 580-82664-7  
 Matrix: Water Lab File ID: L1918022.D  
 Analysis Method: 8260C Date Collected: 12/12/2018 00:01  
 Sample wt/vol: 5 (mL) Date Analyzed: 12/19/2018 18:39  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: DB-VRX ID: 0.25 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 291539 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
95-47-6	o-Xylene	ND		2.0	0.15
100-42-5	Styrene	ND		5.0	0.51
75-25-2	Bromoform	ND	<i>mw</i>	3.0	0.56
98-82-8	Isopropylbenzene	ND		2.0	0.51
108-86-1	Bromobenzene	ND		2.0	0.18
103-65-1	N-Propylbenzene	ND		3.0	0.50
96-18-4	1,2,3-Trichloropropane	ND		2.0	0.41
95-49-8	2-Chlorotoluene	ND		3.0	0.51
108-67-8	1,3,5-Trimethylbenzene	ND		3.0	0.55
106-43-4	4-Chlorotoluene	ND		2.0	0.51
98-06-6	t-Butylbenzene	ND		3.0	0.58
95-63-6	1,2,4-Trimethylbenzene	ND		3.0	0.61
135-98-8	sec-Butylbenzene	ND		3.0	0.49
541-73-1	1,3-Dichlorobenzene	ND		2.0	0.18
99-87-6	4-Isopropyltoluene	ND		3.0	0.28
106-46-7	1,4-Dichlorobenzene	ND		4.0	0.98
104-51-8	n-Butylbenzene	ND		3.0	0.44
95-50-1	1,2-Dichlorobenzene	ND		2.0	0.46
96-12-8	1,2-Dibromo-3-Chloropropane	ND		10	1.8
120-82-1	1,2,4-Trichlorobenzene	ND		2.0	0.33
87-61-6	1,2,3-Trichlorobenzene	ND	<i>f</i>	5.0	0.46
87-68-3	Hexachlorobutadiene	ND		6.0	0.79
91-20-3	Naphthalene	ND	<i>mw</i>	4.0	0.93
1634-04-4	Methyl tert-butyl ether	ND	<i>mw</i>	2.0	0.44

CAS NO.	SURROGATE	%REC	Q	LIMITS
2037-26-5	Toluene-d8 (Surr)	102		80-122
460-00-4	4-Bromofluorobenzene (Surr)	102		80-125
1868-53-7	Dibromofluoromethane (Surr)	107		77-120
98-08-8	Trifluorotoluene (Surr)	104		80-120
17060-07-0	1,2-Dichloroethane-d4 (Surr)	106		80-126

*mw 1-7-19*



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### MEMORANDUM

DATE: January 7, 2019

TO: Steve Hall, START-IV Project Manager, E & E, Seattle, Washington

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington *MW*

SUBJ: **Organic Data Quality Assurance Review, May Creek Removal Action Site, Renton, Washington**

REF: TO: TO-68HE0718F0470 PAN: 1004530.0470.001.01

The data quality assurance review of one water and nine soil samples collected from the May Creek Removal Action site in Renton, Washington, has been completed. Volatile Organic Compound (VOC) analysis (EPA Method 8260) was performed by Test America, Inc., Tacoma, Washington. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Manual Process (S2B/4VM).

The samples were numbered:

18111116	18111117	18111118	18111119	18111120
18111121	18111122	18111123	18111124	18111125

#### Data Qualifications:

##### 1. Sample Holding Times: Acceptable.

The samples were collected between December 10 and 12, 2018, were received at the laboratory on December 12, 2018, and were analyzed by December 20, 2018, therefore meeting QC criteria of less than 14 days between collection and analysis for soil and preserved water samples.

##### 2. Tuning: Satisfactory.

Tuning was performed at the beginning of each 12-hour analysis sequence. All results were within QC limits except the M/E 176 result of 94.5% vs the QC limits of 95.0% - 101.0% of mass 174. No actions were applied based on this slight outlier as the laboratory indicates that this value meets method criteria as a result of a rounding/significant figure precision error.

##### 3. Initial Calibration: Satisfactory.

All average Relative Response Factors (RRFs) were within the QC limits except chloroethane; associated sample quantitation limits were rejected (R). All Relative Standard Deviations (RSDs) and/or correlation coefficients were within the QC limits.

##### 4. Continuing Calibration: Satisfactory.

All RRFs were within the QC limits except benzene associated with the reanalyses for samples 18111120, 18111121, and 18111123; associated positive results were qualified as estimated quantities



with a high bias (JH). All associated % differences were within the QC limits associated with all original analyses for all samples except dichlorodifluoromethane, carbon tetrachloride, n-butylbenzene, 1,2,4-trichlorobenzene, and hexachlorobutadiene with low recoveries and vinyl chloride, chloroethane, 1,1-dichloroethene, trans-1,2-dichloroethene, cis-1,2-dichloroethene, benzene, and 1,2-dichloropropane with high recoveries. Positive results and sample quantitation limits associated with low recoveries were qualified as estimated quantities with a low bias (JL or UJL) and positive results associated with high recoveries were qualified as estimated quantities with a high bias (JH).

**5. Blanks: Satisfactory.**

A method blank was analyzed for each 20 sample batch per matrix. There were no detections in any method blank except m-xylene & p-xylene (16 ug/kg), tetrachloroethene (12.2 ug/kg), and toluene (47.2 ug/kg) were detected in the method blank. Sample results less than two times the positive blank results or sample results less than the reporting limit were qualified as not detected (U). No actions were taken based on the absence of a trip blank as several field samples had no detections.

**6. System Monitoring Compounds (SMCs): Acceptable.**

All SMC recoveries were within QC limits except 1,2-dichloroethane-d4 failed the surrogate recovery criteria low in sample 18111120. According to the laboratory, evidence of matrix interference was present; therefore, no actions were taken.

**7. Blank Spike (BS)/BS Duplicate (BSD) Analysis: Satisfactory.**

BS and BSD analyses were performed per SDG or per matrix per concentration level, whichever was more frequent. All recoveries were within QC limits except 1,2-dichloropropane, benzene, chloroethane, cis-1,2-dichloroethene, methylene chloride and trans-1,2-dichloroethene failed the recovery criteria high for the BS and 1,1-dichloroethene, 1,2-dichloropropane, chloroethane, cis-1,2-dichloroethene and trans-1,2-dichloroethene failed the recovery criteria high for the BSD. These analytes were biased high in the BS and BSD and were not detected in the associated samples; therefore, no actions were taken.

**8. Spike Duplicate Analysis: Satisfactory.**

Spike duplicate analyses were performed per SDG or per matrix per concentration level, whichever was more frequent. All spike duplicate results were within QC limits except 1,1-dichloroethene, chloroform, and cis-1,2-dichloroethene. No additional actions were taken based on duplicate outliers alone.

**9. Internal Standards: Acceptable.**

All internal standards were within  $\pm 30$  seconds of the continuing calibration internal standard retention times. All area counts were within 50 % to 200 % of the continuing calibration area counts.

**10. Performance Evaluation Sample Analysis: Not Provided.**

Performance evaluation samples were not provided to the laboratory.

**11. Overall Assessment of Data for Use**

From the laboratory case narrative: The following samples were received in pre-weighed containers with a label that was added in the field, which will cause a slight low bias in the final results: 18111116, 18111117, 18111118, 18111119, 18111120, 18111121, 18111122, 18111123, and 18111124. No actions were taken based on this information.

From the laboratory case narrative: The following samples were provided to the laboratory with a significantly different initial weight than that required by the reference method: 18111116 and 18111117.





Deviations in the weight by more than 20% may affect reporting limits and potentially method performance. The method specifies 10 grams. The amount provided was above this range. No actions were taken based on this information.

A total of 636 results were validated in this data memorandum. No sample results were qualified as estimated quantities (J) based on duplicate precision outliers, spike accuracy outliers, holding time outliers, incorrect sample containers, or sample temperature outliers. The following analytes were detected in the method blank: m-xylene & p-xylene, tetrachloroethene, and toluene. No sample results were rejected (R).

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the analytical method(s), the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, and/or the Office of Emergency and Remedial Response Publication "National Functional Guidelines for Superfund Organic Methods Data Review, January 2017". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

#### Data Qualifiers and Definitions

- H - The sample result is biased high.
- J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
- K - The bias of the sample is not known.
- L - The sample result is biased low.
- N - The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification".
- NJ - The analyte has been "tentatively identified" or "presumptively" as present and the associated numerical value is the estimated concentration in the sample.
- Q - Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.
- R - The data is rejected and unusable. The analyte may or may not be present in the sample.
- U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.



FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle

Job No.: 580-82665-1

SDG No.: \_\_\_\_\_

Client Sample ID: 18111116

Lab Sample ID: 580-82665-1

Matrix: Solid

Lab File ID: 121918009.D

Analysis Method: 8260C

Date Collected: 12/10/2018 11:00

Sample wt/vol: 13.66(g)

Date Analyzed: 12/19/2018 13:37

Soil Aliquot Vol: 1.075 (mL)

Dilution Factor: 1

Soil Extract Vol.: 10(mL)

GC Column: DB-VRX ID: 0.25 (mm)

% Moisture: 17.1

Level: (low/med) Medium

Analysis Batch No.: 291581

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
630-20-6	1,1,1,2-Tetrachloroethane	ND		44	12
71-55-6	1,1,1-Trichloroethane	ND		44	10
79-34-5	1,1,2,2-Tetrachloroethane	ND		22	8.3
79-00-5	1,1,2-Trichloroethane	ND		22	8.1
75-34-3	1,1-Dichloroethane	ND		44	4.6
75-35-4	1,1-Dichloroethene	ND	<i>1m</i>	44	13
563-58-6	1,1-Dichloropropene	ND		44	5.8
87-61-6	1,2,3-Trichlorobenzene	ND		160	35
96-18-4	1,2,3-Trichloropropane	ND		44	13
120-82-1	1,2,4-Trichlorobenzene	ND		65	17
95-63-6	1,2,4-Trimethylbenzene	ND		44	15
96-12-8	1,2-Dibromo-3-Chloropropane	ND		270	43
106-93-4	1,2-Dibromoethane	ND		22	4.1
95-50-1	1,2-Dichlorobenzene	ND		44	9.5
107-06-2	1,2-Dichloroethane	ND		22	6.0
78-87-5	1,2-Dichloropropane	ND	<i>1m</i>	22	7.2
108-67-8	1,3,5-Trimethylbenzene	ND		44	8.3
541-73-1	1,3-Dichlorobenzene	ND		65	14
142-28-9	1,3-Dichloropropane	ND		65	15
106-46-7	1,4-Dichlorobenzene	ND		65	12
594-20-7	2,2-Dichloropropane	ND		44	13
95-49-8	2-Chlorotoluene	ND		44	9.6
106-43-4	4-Chlorotoluene	ND		44	11
99-87-6	4-Isopropyltoluene	12	<i>1m</i>	44	11
71-43-2	Benzene	ND	<i>1m</i>	33	8.3
108-86-1	Bromobenzene	ND		110	19
74-97-5	Bromochloromethane	ND		44	6.8
75-27-4	Bromodichloromethane	ND		65	15
75-25-2	Bromoform	ND		220	29
74-83-9	Bromomethane	ND		220	15
56-23-5	Carbon tetrachloride	ND		22	4.1
108-90-7	Chlorobenzene	ND		44	11
75-00-3	Chloroethane	ND		440	59
67-66-3	Chloroform	ND		44	4.6
74-87-3	Chloromethane	ND		110	11
156-59-2	cis-1,2-Dichloroethene	ND	<i>1m</i>	65	14

FORM I 8260C



FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82665-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111116 Lab Sample ID: 580-82665-1  
 Matrix: Solid Lab File ID: 121918009.D  
 Analysis Method: 8260C Date Collected: 12/10/2018 11:00  
 Sample wt/vol: 13.66(g) Date Analyzed: 12/19/2018 13:37  
 Soil Aliquot Vol: 1.075 (mL) Dilution Factor: 1  
 Soil Extract Vol.: 10(mL) GC Column: DB-VRX ID: 0.25(mm)  
 % Moisture: 17.1 Level: (low/med) Medium  
 Analysis Batch No.: 291581 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
10061-01-5	cis-1,3-Dichloropropene	ND		22	4.4
124-48-1	Dibromochloromethane	ND		44	12
74-95-3	Dibromomethane	ND		65	8.1
75-71-8	Dichlorodifluoromethane	ND		220	50
100-41-4	Ethylbenzene	ND		44	9.9
87-68-3	Hexachlorobutadiene	ND		160	36
98-82-8	Isopropylbenzene	ND		44	9.4
1634-04-4	Methyl tert-butyl ether	ND		44	6.5
75-09-2	Methylene Chloride	ND	/m	270	70
179601-23-1	m-Xylene & p-Xylene	ND		220	16
91-20-3	Naphthalene	ND		110	31
104-51-8	n-Butylbenzene	ND		160	27
103-65-1	N-Propylbenzene	ND		44	7.5
95-47-6	o-Xylene	ND		65	15
135-98-8	sec-Butylbenzene	ND		44	9.4
100-42-5	Styrene	ND		44	6.6
98-06-6	t-Butylbenzene	ND		44	8.4
127-18-4	Tetrachloroethene	ND		44	5.8
108-88-3	Toluene	ND	/m	160	15
156-60-5	trans-1,2-Dichloroethene	ND	/m	65	16
10061-02-6	trans-1,3-Dichloropropene	ND		44	7.6
79-01-6	Trichloroethene	ND		65	24
75-69-4	Trichlorofluoromethane	ND		220	12
75-01-4	Vinyl chloride	ND		160	29

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	89		80-121
460-00-4	4-Bromofluorobenzene (Surr)	95		80-120
1868-53-7	Dibromofluoromethane (Surr)	96		80-120
2037-26-5	Toluene-d8 (Surr)	99		80-120
98-08-8	Trifluorotoluene (Surr)	99		80-120

*Man 1-7-19*



FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82665-1

SDG No.: \_\_\_\_\_

Client Sample ID: 18111117 Lab Sample ID: 580-82665-2

Matrix: Solid Lab File ID: 121918010.D

Analysis Method: 8260C Date Collected: 12/10/2018 11:30

Sample wt/vol: 12.86(g) Date Analyzed: 12/19/2018 14:02

Soil Aliquot Vol: 1.075 (mL) Dilution Factor: 1

Soil Extract Vol.: 10(mL) GC Column: DB-VRX ID: 0.25(mm)

% Moisture: 19.1 Level: (low/med) Medium

Analysis Batch No.: 291581 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
630-20-6	1,1,1,2-Tetrachloroethane	ND		48	13
71-55-6	1,1,1-Trichloroethane	ND		48	11
79-34-5	1,1,2,2-Tetrachloroethane	ND		24	9.1
79-00-5	1,1,2-Trichloroethane	ND		24	8.9
75-34-3	1,1-Dichloroethane	ND		48	5.0
75-35-4	1,1-Dichloroethene	ND	*	48	15
563-58-6	1,1-Dichloropropene	ND		48	6.3
87-61-6	1,2,3-Trichlorobenzene	ND		180	38
96-18-4	1,2,3-Trichloropropane	ND		48	14
120-82-1	1,2,4-Trichlorobenzene	ND		72	18
95-63-6	1,2,4-Trimethylbenzene	ND		48	16
96-12-8	1,2-Dibromo-3-Chloropropane	ND		300	48
106-93-4	1,2-Dibromoethane	ND		24	4.5
95-50-1	1,2-Dichlorobenzene	ND		48	10
107-06-2	1,2-Dichloroethane	ND		24	6.6
78-87-5	1,2-Dichloropropane	ND	*	24	7.9
108-67-8	1,3,5-Trimethylbenzene	ND		48	9.1
541-73-1	1,3-Dichlorobenzene	ND		72	16
142-28-9	1,3-Dichloropropane	ND		72	17
106-46-7	1,4-Dichlorobenzene	ND		72	13
594-20-7	2,2-Dichloropropane	ND		48	14
95-49-8	2-Chlorotoluene	ND		48	11
106-43-4	4-Chlorotoluene	ND		48	12
99-87-6	4-Isopropyltoluene	ND		48	12
71-43-2	Benzene	ND	*	36	9.1
108-86-1	Bromobenzene	ND		120	20
74-97-5	Bromochloromethane	ND		48	7.4
75-27-4	Bromodichloromethane	ND		72	16
75-25-2	Bromoform	ND		240	31
74-83-9	Bromomethane	ND		240	16
56-23-5	Carbon tetrachloride	ND		24	4.5
108-90-7	Chlorobenzene	ND		48	12
75-00-3	Chloroethane	ND	*	480	65
67-66-3	Chloroform	ND		48	5.0
74-87-3	Chloromethane	ND		120	12
156-59-2	cis-1,2-Dichloroethene	ND		72	15





FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82665-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111117 Lab Sample ID: 580-82665-2  
 Matrix: Solid Lab File ID: 121918010.D  
 Analysis Method: 8260C Date Collected: 12/10/2018 11:30  
 Sample wt/vol: 12.86(g) Date Analyzed: 12/19/2018 14:02  
 Soil Aliquot Vol: 1.075 (mL) Dilution Factor: 1  
 Soil Extract Vol.: 10(mL) GC Column: DB-VRX ID: 0.25 (mm)  
 % Moisture: 19.1 Level: (low/med) Medium  
 Analysis Batch No.: 291581 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
10061-01-5	cis-1,3-Dichloropropene	ND		24	4.8
124-48-1	Dibromochloromethane	ND		48	14
74-95-3	Dibromomethane	ND		72	8.9
75-71-8	Dichlorodifluoromethane	ND		240	55
100-41-4	Ethylbenzene	ND		48	11
87-68-3	Hexachlorobutadiene	ND		180	40
98-82-8	Isopropylbenzene	ND		48	10
1634-04-4	Methyl tert-butyl ether	ND		48	7.2
75-09-2	Methylene Chloride	ND		300	77
179601-23-1	m-Xylene & p-Xylene	ND		240	18
91-20-3	Naphthalene	ND		120	34
104-51-8	n-Butylbenzene	ND		180	30
103-65-1	N-Propylbenzene	ND		48	8.3
95-47-6	o-Xylene	ND		72	16
135-98-8	sec-Butylbenzene	ND		48	10
100-42-5	Styrene	ND		48	7.3
98-06-6	t-Butylbenzene	ND		48	9.2
127-18-4	Tetrachloroethene	ND		48	6.3
108-88-3	Toluene	ND		180	16
156-60-5	trans-1,2-Dichloroethene	ND		72	17
10061-02-6	trans-1,3-Dichloropropene	ND		48	8.4
79-01-6	Trichloroethene	ND		72	26
75-69-4	Trichlorofluoromethane	ND		240	14
75-01-4	Vinyl chloride	ND		180	31

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	92		80-121
460-00-4	4-Bromofluorobenzene (Surr)	97		80-120
1868-53-7	Dibromofluoromethane (Surr)	98		80-120
2037-26-5	Toluene-d8 (Surr)	98		80-120
98-08-8	Trifluorotoluene (Surr)	93		80-120

*Mw 17/19*



FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle

Job No.: 580-82665-1

SDG No.: \_\_\_\_\_

Client Sample ID: 18111118

Lab Sample ID: 580-82665-3

Matrix: Solid

Lab File ID: 121918011.D

Analysis Method: 8260C

Date Collected: 12/10/2018 13:45

Sample wt/vol: 10.96(g)

Date Analyzed: 12/19/2018 14:28

Soil Aliquot Vol: 1.075 (mL)

Dilution Factor: 1

Soil Extract Vol.: 10(mL)

GC Column: DB-VRX ID: 0.25 (mm)

% Moisture: 21.4

Level: (low/med) Medium

Analysis Batch No.: 291581

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
630-20-6	1,1,1,2-Tetrachloroethane	ND		57	15
71-55-6	1,1,1-Trichloroethane	ND		57	14
79-34-5	1,1,2,2-Tetrachloroethane	ND		29	11
79-00-5	1,1,2-Trichloroethane	ND		29	11
75-34-3	1,1-Dichloroethane	ND		57	6.0
75-35-4	1,1-Dichloroethene	ND	*	57	18
563-58-6	1,1-Dichloropropene	ND		57	7.6
87-61-6	1,2,3-Trichlorobenzene	ND		220	46
96-18-4	1,2,3-Trichloropropane	ND		57	16
120-82-1	1,2,4-Trichlorobenzene	ND		86	22
95-63-6	1,2,4-Trimethylbenzene	ND		57	19
96-12-8	1,2-Dibromo-3-Chloropropane	ND		360	57
106-93-4	1,2-Dibromoethane	ND		29	5.4
95-50-1	1,2-Dichlorobenzene	ND		57	12
107-06-2	1,2-Dichloroethane	ND		29	7.9
78-87-5	1,2-Dichloropropane	ND	*	29	9.5
108-67-8	1,3,5-Trimethylbenzene	ND		57	11
541-73-1	1,3-Dichlorobenzene	ND		86	19
142-28-9	1,3-Dichloropropane	ND		86	20
106-46-7	1,4-Dichlorobenzene	ND		86	15
594-20-7	2,2-Dichloropropane	ND		57	17
95-49-8	2-Chlorotoluene	ND		57	13
106-43-4	4-Chlorotoluene	ND		57	14
99-87-6	4-Isopropyltoluene	ND		57	15
71-43-2	Benzene	ND	*	43	11
108-86-1	Bromobenzene	ND		140	25
74-97-5	Bromochloromethane	ND		57	8.9
75-27-4	Bromodichloromethane	ND		86	19
75-25-2	Bromoform	ND		290	38
74-83-9	Bromomethane	ND		290	19
56-23-5	Carbon tetrachloride	ND		29	5.4
108-90-7	Chlorobenzene	ND		57	14
75-00-3	Chloroethane	ND	*	570	78
67-66-3	Chloroform	ND		57	6.0
74-87-3	Chloromethane	ND		140	14
156-59-2	cis-1,2-Dichloroethene	ND		86	18



FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle

Job No.: 580-82665-1

SDG No.: \_\_\_\_\_

Client Sample ID: 18111118

Lab Sample ID: 580-82665-3

Matrix: Solid

Lab File ID: 121918011.D

Analysis Method: 8260C

Date Collected: 12/10/2018 13:45

Sample wt/vol: 10.96(g)

Date Analyzed: 12/19/2018 14:28

Soil Aliquot Vol: 1.075 (mL)

Dilution Factor: 1

Soil Extract Vol.: 10(mL)

GC Column: DB-VRX ID: 0.25(mm)

% Moisture: 21.4

Level: (low/med) Medium

Analysis Batch No.: 291581

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
10061-01-5	cis-1,3-Dichloropropene	ND		29	5.7
124-48-1	Dibromochloromethane	ND		57	16
74-95-3	Dibromomethane	ND		86	11
75-71-8	Dichlorodifluoromethane	ND		290	66
100-41-4	Ethylbenzene	43	J	57	13
87-68-3	Hexachlorobutadiene	ND		220	48
98-82-8	Isopropylbenzene	ND		57	12
1634-04-4	Methyl tert-butyl ether	ND		57	8.6
75-09-2	Methylene Chloride	ND		360	93
179601-23-1	m-Xylene & p-Xylene	200	J	290	21
91-20-3	Naphthalene	ND		140	41
104-51-8	n-Butylbenzene	ND		220	36
103-65-1	N-Propylbenzene	ND		57	9.9
95-47-6	o-Xylene	70	J	86	19
135-98-8	sec-Butylbenzene	ND		57	12
100-42-5	Styrene	ND		57	8.7
98-06-6	t-Butylbenzene	ND		57	11
127-18-4	Tetrachloroethene	ND		57	7.6
108-88-3	Toluene	ND		220	19
156-60-5	trans-1,2-Dichloroethene	ND		86	21
10061-02-6	trans-1,3-Dichloropropene	ND		57	10
79-01-6	Trichloroethene	ND		86	32
75-69-4	Trichlorofluoromethane	ND		290	16
75-01-4	Vinyl chloride	ND		220	38

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	95		80-121
460-00-4	4-Bromofluorobenzene (Surr)	93		80-120
1868-53-7	Dibromofluoromethane (Surr)	98		80-120
2037-26-5	Toluene-d8 (Surr)	99		80-120
98-08-8	Trifluorotoluene (Surr)	95		80-120

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FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle

Job No.: 580-82665-1

SDG No.: \_\_\_\_\_

Client Sample ID: 18111119

Lab Sample ID: 580-82665-4

Matrix: Solid

Lab File ID: 121918012.D

Analysis Method: 8260C

Date Collected: 12/10/2018 14:20

Sample wt/vol: 11.37(g)

Date Analyzed: 12/19/2018 14:53

Soil Aliquot Vol: 1.075 (mL)

Dilution Factor: 1

Soil Extract Vol.: 10(mL)

GC Column: DB-VRX ID: 0.25 (mm)

% Moisture: 17.9

Level: (low/med) Medium

Analysis Batch No.: 291581

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
630-20-6	1,1,1,2-Tetrachloroethane	ND		52	14
71-55-6	1,1,1-Trichloroethane	ND		52	12
79-34-5	1,1,2,2-Tetrachloroethane	ND		26	9.8
79-00-5	1,1,2-Trichloroethane	ND		26	9.5
75-34-3	1,1-Dichloroethane	ND		52	5.4
75-35-4	1,1-Dichloroethene	ND		52	16
563-58-6	1,1-Dichloropropene	ND		52	6.8
87-61-6	1,2,3-Trichlorobenzene	ND		190	41
96-18-4	1,2,3-Trichloropropane	ND		52	15
120-82-1	1,2,4-Trichlorobenzene	ND		77	20
95-63-6	1,2,4-Trimethylbenzene	ND		52	17
96-12-8	1,2-Dibromo-3-Chloropropane	ND		320	51
106-93-4	1,2-Dibromoethane	ND		26	4.9
95-50-1	1,2-Dichlorobenzene	ND		52	11
107-06-2	1,2-Dichloroethane	ND		26	7.1
78-87-5	1,2-Dichloropropane	ND		26	8.5
108-67-8	1,3,5-Trimethylbenzene	ND		52	9.8
541-73-1	1,3-Dichlorobenzene	ND		77	17
142-28-9	1,3-Dichloropropane	ND		77	18
106-46-7	1,4-Dichlorobenzene	ND		77	14
594-20-7	2,2-Dichloropropane	ND		52	16
95-49-8	2-Chlorotoluene	ND		52	11
106-43-4	4-Chlorotoluene	ND		52	13
99-87-6	4-Isopropyltoluene	ND		52	13
71-43-2	Benzene	ND		39	9.8
108-86-1	Bromobenzene	ND		130	22
74-97-5	Bromochloromethane	ND		52	8.0
75-27-4	Bromodichloromethane	ND		77	17
75-25-2	Bromoform	ND		260	34
74-83-9	Bromomethane	ND		260	17
56-23-5	Carbon tetrachloride	ND		26	4.9
108-90-7	Chlorobenzene	ND		52	13
75-00-3	Chloroethane	ND		520	70
67-66-3	Chloroform	ND		52	5.4
74-87-3	Chloromethane	ND		130	13
156-59-2	cis-1,2-Dichloroethene	ND		77	16

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FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle

Job No.: 580-82665-1

SDG No.: \_\_\_\_\_

Client Sample ID: 18111119

Lab Sample ID: 580-82665-4

Matrix: Solid

Lab File ID: 121918012.D

Analysis Method: 8260C

Date Collected: 12/10/2018 14:20

Sample wt/vol: 11.37(g)

Date Analyzed: 12/19/2018 14:53

Soil Aliquot Vol: 1.075 (mL)

Dilution Factor: 1

Soil Extract Vol.: 10(mL)

GC Column: DB-VRX ID: 0.25(mm)

% Moisture: 17.9

Level: (low/med) Medium

Analysis Batch No.: 291581

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
10061-01-5	cis-1,3-Dichloropropene	ND		26	5.2
124-48-1	Dibromochloromethane	ND		52	15
74-95-3	Dibromomethane	ND		77	9.5
75-71-8	Dichlorodifluoromethane	ND		260	59
100-41-4	Ethylbenzene	ND		52	12
87-68-3	Hexachlorobutadiene	ND		190	43
98-82-8	Isopropylbenzene	ND		52	11
1634-04-4	Methyl tert-butyl ether	ND		52	7.7
75-09-2	Methylene Chloride	ND	1/m	320	83
179601-23-1	m-Xylene & p-Xylene	ND		260	19
91-20-3	Naphthalene	ND		130	36
104-51-8	n-Butylbenzene	ND		190	32
103-65-1	N-Propylbenzene	ND		52	8.9
95-47-6	o-Xylene	ND		77	17
135-98-8	sec-Butylbenzene	ND		52	11
100-42-5	Styrene	ND		52	7.9
98-06-6	t-Butylbenzene	ND		52	9.9
127-18-4	Tetrachloroethene	ND		52	6.8
108-88-3	Toluene	ND	1/m	190	17
156-60-5	trans-1,2-Dichloroethene	ND		77	19
10061-02-6	trans-1,3-Dichloropropene	ND		52	9.0
79-01-6	Trichloroethene	ND		77	28
75-69-4	Trichlorofluoromethane	ND		260	15
75-01-4	Vinyl chloride	ND		190	34

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	87		80-121
460-00-4	4-Bromofluorobenzene (Surr)	95		80-120
1868-53-7	Dibromofluoromethane (Surr)	97		80-120
2037-26-5	Toluene-d8 (Surr)	100		80-120
98-08-8	Trifluorotoluene (Surr)	96		80-120



FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle

Job No.: 580-82665-1

SDG No.: \_\_\_\_\_

Client Sample ID: 18111120

Lab Sample ID: 580-82665-5

Matrix: Solid

Lab File ID: 121918013.D

Analysis Method: 8260C

Date Collected: 12/10/2018 15:00

Sample wt/vol: 9.04(g)

Date Analyzed: 12/19/2018 15:18

Soil Aliquot Vol: 1.075 (mL)

Dilution Factor: 1

Soil Extract Vol.: 10(mL)

GC Column: DB-VRX ID: 0.25 (mm)

% Moisture: 10.0

Level: (low/med) Medium

Analysis Batch No.: 291581

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
630-20-6	1,1,1,2-Tetrachloroethane	ND		54	14
71-55-6	1,1,1-Trichloroethane	ND		54	13
79-34-5	1,1,2,2-Tetrachloroethane	ND		27	10
79-00-5	1,1,2-Trichloroethane	ND		27	9.9
75-34-3	1,1-Dichloroethane	ND		54	5.6
75-35-4	1,1-Dichloroethene	ND	lu	54	16
563-58-6	1,1-Dichloropropene	ND		54	7.1
87-61-6	1,2,3-Trichlorobenzene	ND		200	43
96-18-4	1,2,3-Trichloropropane	ND		54	15
120-82-1	1,2,4-Trichlorobenzene	ND	lu	80	21
95-63-6	1,2,4-Trimethylbenzene	45	JQ	54	18
96-12-8	1,2-Dibromo-3-Chloropropane	ND		340	53
106-93-4	1,2-Dibromoethane	ND		27	5.1
95-50-1	1,2-Dichlorobenzene	ND		54	12
107-06-2	1,2-Dichloroethane	ND		27	7.4
78-87-5	1,2-Dichloropropane	ND	lu	27	8.8
108-67-8	1,3,5-Trimethylbenzene	19	JQ	54	10
541-73-1	1,3-Dichlorobenzene	ND		80	18
142-28-9	1,3-Dichloropropane	ND		80	19
106-46-7	1,4-Dichlorobenzene	ND		80	14
594-20-7	2,2-Dichloropropane	ND		54	16
95-49-8	2-Chlorotoluene	ND		54	12
106-43-4	4-Chlorotoluene	ND		54	13
99-87-6	4-Isopropyltoluene	ND		54	14
108-86-1	Bromobenzene	ND		130	23
74-97-5	Bromochloromethane	ND		54	8.3
75-27-4	Bromodichloromethane	ND		80	18
75-25-2	Bromoform	ND		270	35
74-83-9	Bromomethane	ND		270	18
56-23-5	Carbon tetrachloride	ND		27	5.1
108-90-7	Chlorobenzene	ND		54	13
75-00-3	Chloroethane	ND		540	73
67-66-3	Chloroform	ND		54	5.6
74-87-3	Chloromethane	ND		130	14
156-59-2	cis-1,2-Dichloroethene	ND	lu	80	17
10061-01-5	cis-1,3-Dichloropropene	ND		27	5.4



FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle

Job No.: 580-82665-1

SDG No.: \_\_\_\_\_

Client Sample ID: 18111120

Lab Sample ID: 580-82665-5

Matrix: Solid

Lab File ID: 121918013.D

Analysis Method: 8260C

Date Collected: 12/10/2018 15:00

Sample wt/vol: 9.04(g)

Date Analyzed: 12/19/2018 15:18

Soil Aliquot Vol: 1.075 (mL)

Dilution Factor: 1

Soil Extract Vol.: 10(mL)

GC Column: DB-VRX ID: 0.25(mm)

% Moisture: 10.0

Level: (low/med) Medium

Analysis Batch No.: 291581

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
124-48-1	Dibromochloromethane	ND		54	15
74-95-3	Dibromomethane	ND		80	9.9
75-71-8	Dichlorodifluoromethane	ND		270	62
100-41-4	Ethylbenzene	ND		54	12
87-68-3	Hexachlorobutadiene	ND		200	45
98-82-8	Isopropylbenzene	ND		54	12
1634-04-4	Methyl tert-butyl ether	ND		54	10.0
75-09-2	Methylene Chloride	ND		340	87
179601-23-1	m-Xylene & p-Xylene	58 J		270	20
91-20-3	Naphthalene	41 J		130	38
104-51-8	n-Butylbenzene	38 J		200	34
103-65-1	N-Propylbenzene	ND		54	9.3
95-47-6	o-Xylene	20 J		80	18
135-98-8	sec-Butylbenzene	ND		54	12
100-42-5	Styrene	ND		54	8.2
98-06-6	t-Butylbenzene	ND		54	10
127-18-4	Tetrachloroethene	ND		54	7.1
108-88-3	Toluene	130 J		200	18
156-60-5	trans-1,2-Dichloroethene	ND		80	20
10061-02-6	trans-1,3-Dichloropropene	ND		54	9.4
79-01-6	Trichloroethene	ND		80	30
75-69-4	Trichlorofluoromethane	ND		270	15
75-01-4	Vinyl chloride	ND		200	35

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	76		80-121
460-00-4	4-Bromofluorobenzene (Surr)	97		80-120
1868-53-7	Dibromofluoromethane (Surr)	89		80-120
2037-26-5	Toluene-d8 (Surr)	102		80-120
98-08-8	Trifluorotoluene (Surr)	102		80-120

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FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82665-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111120 RA Lab Sample ID: 580-82665-5 RA  
 Matrix: Solid Lab File ID: L2018018.D  
 Analysis Method: 8260C Date Collected: 12/10/2018 15:00  
 Sample wt/vol: 9.04(g) Date Analyzed: 12/20/2018 18:21  
 Soil Aliquot Vol: 1.075 (mL) Dilution Factor: 1  
 Soil Extract Vol.: 10(mL) GC Column: DB-VRX ID: 0.25 (mm)  
 % Moisture: 10.0 Level: (low/med) Medium  
 Analysis Batch No.: 291805 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
71-43-2	Benzene	14	J <i>ML</i>	40	10

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	104		80-121
460-00-4	4-Bromofluorobenzene (Surr)	108		80-120
1868-53-7	Dibromofluoromethane (Surr)	98		80-120
2037-26-5	Toluene-d8 (Surr)	94		80-120
98-08-8	Trifluorotoluene (Surr)	94		80-120

*ML 1-7-19*



FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle

Job No.: 580-82665-1

SDG No.: \_\_\_\_\_

Client Sample ID: 18111121

Lab Sample ID: 580-82665-6

Matrix: Solid

Lab File ID: 121918023.D

Analysis Method: 8260C

Date Collected: 12/10/2018 15:50

Sample wt/vol: 8.32(g)

Date Analyzed: 12/19/2018 19:31

Soil Aliquot Vol: 1.075 (mL)

Dilution Factor: 1

Soil Extract Vol.: 10(mL)

GC Column: DB-VRX ID: 0.25(mm)

% Moisture: 16.6

Level: (low/med) Medium

Analysis Batch No.: 291581

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
630-20-6	1,1,1,2-Tetrachloroethane	ND		66	17
71-55-6	1,1,1-Trichloroethane	ND		66	16
79-34-5	1,1,2,2-Tetrachloroethane	ND		33	12
79-00-5	1,1,2-Trichloroethane	ND		33	12
75-34-3	1,1-Dichloroethane	ND		66	6.9
75-35-4	1,1-Dichloroethene	ND	<i>mw</i>	66	20
563-58-6	1,1-Dichloropropene	ND		66	8.7
87-61-6	1,2,3-Trichlorobenzene	ND		250	53
96-18-4	1,2,3-Trichloropropane	ND		66	19
120-82-1	1,2,4-Trichlorobenzene	ND		98	25
95-63-6	1,2,4-Trimethylbenzene	ND		66	22
96-12-8	1,2-Dibromo-3-Chloropropane	ND		410	65
106-93-4	1,2-Dibromoethane	ND		33	6.2
95-50-1	1,2-Dichlorobenzene	ND		66	14
107-06-2	1,2-Dichloroethane	ND		33	9.0
78-87-5	1,2-Dichloropropane	ND	<i>mw</i>	33	11
108-67-8	1,3,5-Trimethylbenzene	ND		66	12
541-73-1	1,3-Dichlorobenzene	ND		98	22
142-28-9	1,3-Dichloropropane	ND		98	23
106-46-7	1,4-Dichlorobenzene	ND		98	18
594-20-7	2,2-Dichloropropane	ND		66	20
95-49-8	2-Chlorotoluene	ND		66	14
106-43-4	4-Chlorotoluene	ND	<i>mw</i>	66	16
99-87-6	4-Isopropyltoluene	22	<i>J Q</i>	66	17
108-86-1	Bromobenzene	ND		160	28
74-97-5	Bromochloromethane	ND		66	10
75-27-4	Bromodichloromethane	ND		98	22
75-25-2	Bromoform	ND		330	43
74-83-9	Bromomethane	ND		330	22
56-23-5	Carbon tetrachloride	ND		33	6.2
108-90-7	Chlorobenzene	ND		66	16
75-00-3	Chloroethane	ND		660	89
67-66-3	Chloroform	ND		66	6.9
74-87-3	Chloromethane	ND		160	17
156-59-2	cis-1,2-Dichloroethene	ND	<i>mw</i>	98	21
10061-01-5	cis-1,3-Dichloropropene	ND	<i>mw</i>	33	6.6



FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82665-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111121 Lab Sample ID: 580-82665-6  
 Matrix: Solid Lab File ID: 121918023.D  
 Analysis Method: 8260C Date Collected: 12/10/2018 15:50  
 Sample wt/vol: 8.32(g) Date Analyzed: 12/19/2018 19:31  
 Soil Aliquot Vol: 1.075 (mL) Dilution Factor: 1  
 Soil Extract Vol.: 10(mL) GC Column: DB-VRX ID: 0.25 (mm)  
 % Moisture: 16.6 Level: (low/med) Medium  
 Analysis Batch No.: 291581 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
124-48-1	Dibromochloromethane	ND		66	19
74-95-3	Dibromomethane	ND		98	12
75-71-8	Dichlorodifluoromethane	ND		330	75
100-41-4	Ethylbenzene	ND		66	15
87-68-3	Hexachlorobutadiene	ND		250	55
98-82-8	Isopropylbenzene	ND		66	14
1634-04-4	Methyl tert-butyl ether	ND		66	9.8
75-09-2	Methylene Chloride	ND	<i>low</i>	410	110
179601-23-1	m-Xylene & p-Xylene	ND		330	24
91-20-3	Naphthalene	ND		160	46
104-51-8	n-Butylbenzene	ND		250	41
103-65-1	N-Propylbenzene	ND		66	11
95-47-6	o-Xylene	ND		98	22
135-98-8	sec-Butylbenzene	ND		66	14
100-42-5	Styrene	ND		66	10
98-06-6	t-Butylbenzene	ND		66	13
127-18-4	Tetrachloroethene	ND		66	8.7
108-88-3	Toluene	ND	<i>low</i>	250	22
156-60-5	trans-1,2-Dichloroethene	ND		98	24
10061-02-6	trans-1,3-Dichloropropene	ND		66	11
79-01-6	Trichloroethene	ND		98	36
75-69-4	Trichlorofluoromethane	ND		330	19
75-01-4	Vinyl chloride	ND		250	43

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	82		80-121
460-00-4	4-Bromofluorobenzene (Surr)	93		80-120
1868-53-7	Dibromofluoromethane (Surr)	94		80-120
2037-26-5	Toluene-d8 (Surr)	92		80-120
98-08-8	Trifluorotoluene (Surr)	105		80-120





FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82665-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111121 RA Lab Sample ID: 580-82665-6 RA  
 Matrix: Solid Lab File ID: L2018019.D  
 Analysis Method: 8260C Date Collected: 12/10/2018 15:50  
 Sample wt/vol: 8.32(g) Date Analyzed: 12/20/2018 18:47  
 Soil Aliquot Vol: 1.075 (mL) Dilution Factor: 1  
 Soil Extract Vol.: 10(mL) GC Column: DB-VRX ID: 0.25(mm)  
 % Moisture: 16.6 Level: (low/med) Medium  
 Analysis Batch No.: 291805 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
71-43-2	Benzene	21	J <i>hQ</i>	49	12

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	103		80-121
460-00-4	4-Bromofluorobenzene (Surr)	104		80-120
1868-53-7	Dibromofluoromethane (Surr)	95		80-120
2037-26-5	Toluene-d8 (Surr)	95		80-120
98-08-8	Trifluorotoluene (Surr)	97		80-120

*Mw 1-7-19*



FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82665-1

SDG No.: \_\_\_\_\_

Client Sample ID: 18111122 Lab Sample ID: 580-82665-7

Matrix: Solid Lab File ID: 121918014.D

Analysis Method: 8260C Date Collected: 12/11/2018 09:40

Sample wt/vol: 8.03(g) Date Analyzed: 12/19/2018 15:43

Soil Aliquot Vol: 1.075 (mL) Dilution Factor: 1

Soil Extract Vol.: 10(mL) GC Column: DB-VRX ID: 0.25 (mm)

% Moisture: 36.5 Level: (low/med) Medium

Analysis Batch No.: 291581 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
630-20-6	1,1,1,2-Tetrachloroethane	ND		100	27
71-55-6	1,1,1-Trichloroethane	ND		100	24
79-34-5	1,1,2,2-Tetrachloroethane	ND		51	19
79-00-5	1,1,2-Trichloroethane	ND		51	19
75-34-3	1,1-Dichloroethane	ND		100	11
75-35-4	1,1-Dichloroethene	ND		100	31
563-58-6	1,1-Dichloropropene	ND		100	13
87-61-6	1,2,3-Trichlorobenzene	ND		380	81
96-18-4	1,2,3-Trichloropropane	ND		100	29
120-82-1	1,2,4-Trichlorobenzene	ND		150	39
95-63-6	1,2,4-Trimethylbenzene	ND		100	34
96-12-8	1,2-Dibromo-3-Chloropropane	ND		630	100
106-93-4	1,2-Dibromoethane	ND		51	9.6
95-50-1	1,2-Dichlorobenzene	ND		100	22
107-06-2	1,2-Dichloroethane	ND		51	14
78-87-5	1,2-Dichloropropane	ND	*	51	17
108-67-8	1,3,5-Trimethylbenzene	ND		100	19
541-73-1	1,3-Dichlorobenzene	ND		150	34
142-28-9	1,3-Dichloropropane	ND		150	35
106-46-7	1,4-Dichlorobenzene	ND		150	27
594-20-7	2,2-Dichloropropane	ND		100	31
95-49-8	2-Chlorotoluene	ND		100	22
106-43-4	4-Chlorotoluene	ND		100	25
99-87-6	4-Isopropyltoluene	ND		100	26
71-43-2	Benzene	ND	*	76	19
108-86-1	Bromobenzene	ND		250	43
74-97-5	Bromochloromethane	ND		100	16
75-27-4	Bromodichloromethane	ND		150	34
75-25-2	Bromoform	ND		510	67
74-83-9	Bromomethane	ND		510	34
56-23-5	Carbon tetrachloride	ND		51	9.6
108-90-7	Chlorobenzene	ND		100	25
75-00-3	Chloroethane	ND	*	1000	140
67-66-3	Chloroform	ND		100	11
74-87-3	Chloromethane	ND		250	26
156-59-2	cis-1,2-Dichloroethene	ND		150	32



FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82665-1

SDG No.: \_\_\_\_\_

Client Sample ID: 18111122 Lab Sample ID: 580-82665-7

Matrix: Solid Lab File ID: 121918014.D

Analysis Method: 8260C Date Collected: 12/11/2018 09:40

Sample wt/vol: 8.03(g) Date Analyzed: 12/19/2018 15:43

Soil Aliquot Vol: 1.075 (mL) Dilution Factor: 1

Soil Extract Vol.: 10(mL) GC Column: DB-VRX ID: 0.25(mm)

% Moisture: 36.5 Level: (low/med) Medium

Analysis Batch No.: 291581 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
10061-01-5	cis-1,3-Dichloropropene	ND		51	10
124-48-1	Dibromochloromethane	ND		100	29
74-95-3	Dibromomethane	ND		150	19
75-71-8	Dichlorodifluoromethane	ND		510	120
100-41-4	Ethylbenzene	ND		100	23
87-68-3	Hexachlorobutadiene	ND		380	85
98-82-8	Isopropylbenzene	ND		100	22
1634-04-4	Methyl tert-butyl ether	ND		100	15
75-09-2	Methylene Chloride	ND	100	630	160
179601-23-1	m-Xylene & p-Xylene	ND		510	38
91-20-3	Naphthalene	ND		250	72
104-51-8	n-Butylbenzene	ND		380	64
103-65-1	N-Propylbenzene	ND		100	17
95-47-6	o-Xylene	ND		150	34
135-98-8	sec-Butylbenzene	ND		100	22
100-42-5	Styrene	ND		100	15
98-06-6	t-Butylbenzene	ND		100	20
127-18-4	Tetrachloroethene	ND		100	13
108-88-3	Toluene	ND		380	34
156-60-5	trans-1,2-Dichloroethene	ND		150	37
10061-02-6	trans-1,3-Dichloropropene	ND		100	18
79-01-6	Trichloroethene	ND		150	56
75-69-4	Trichlorofluoromethane	130	JQ	510	29
75-01-4	Vinyl chloride	ND		380	66

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	86		80-121
460-00-4	4-Bromofluorobenzene (Surr)	97		80-120
1868-53-7	Dibromofluoromethane (Surr)	93		80-120
2037-26-5	Toluene-d8 (Surr)	99		80-120
98-08-8	Trifluorotoluene (Surr)	98		80-120

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FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle

Job No.: 580-82665-1

SDG No.: \_\_\_\_\_

Client Sample ID: 18111123

Lab Sample ID: 580-82665-8

Matrix: Solid

Lab File ID: 121918015.D

Analysis Method: 8260C

Date Collected: 12/11/2018 09:50

Sample wt/vol: 11.57(g)

Date Analyzed: 12/19/2018 16:08

Soil Aliquot Vol: 1.075 (mL)

Dilution Factor: 1

Soil Extract Vol.: 10(mL)

GC Column: DB-VRX ID: 0.25(mm)

% Moisture: 30.5

Level: (low/med) Medium

Analysis Batch No.: 291581

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
630-20-6	1,1,1,2-Tetrachloroethane	ND		67	18
71-55-6	1,1,1-Trichloroethane	ND		67	16
79-34-5	1,1,2,2-Tetrachloroethane	ND		34	13
79-00-5	1,1,2-Trichloroethane	ND		34	12
75-34-3	1,1-Dichloroethane	ND		67	7.1
75-35-4	1,1-Dichloroethene	ND		67	21
563-58-6	1,1-Dichloropropene	ND		67	8.9
87-61-6	1,2,3-Trichlorobenzene	ND		250	54
96-18-4	1,2,3-Trichloropropane	ND		67	19
120-82-1	1,2,4-Trichlorobenzene	ND		100	26
95-63-6	1,2,4-Trimethylbenzene	1900		67	23
96-12-8	1,2-Dibromo-3-Chloropropane	ND		420	67
106-93-4	1,2-Dibromoethane	ND		34	6.4
95-50-1	1,2-Dichlorobenzene	ND		67	15
107-06-2	1,2-Dichloroethane	ND		34	9.3
78-87-5	1,2-Dichloropropane	ND		34	11
108-67-8	1,3,5-Trimethylbenzene	330		67	13
541-73-1	1,3-Dichlorobenzene	ND		100	22
142-28-9	1,3-Dichloropropane	ND		100	23
106-46-7	1,4-Dichlorobenzene	ND		100	18
594-20-7	2,2-Dichloropropane	ND		67	20
95-49-8	2-Chlorotoluene	ND		67	15
106-43-4	4-Chlorotoluene	ND		67	16
99-87-6	4-Isopropyltoluene	94		67	17
108-86-1	Bromobenzene	ND		170	29
74-97-5	Bromochloromethane	ND		67	10
75-27-4	Bromodichloromethane	ND		100	23
75-25-2	Bromoform	ND		340	44
74-83-9	Bromomethane	ND		340	23
56-23-5	Carbon tetrachloride	ND		34	6.4
108-90-7	Chlorobenzene	ND		67	16
75-00-3	Chloroethane	ND		670	91
67-66-3	Chloroform	ND		67	7.1
74-87-3	Chloromethane	ND		170	17
156-59-2	cis-1,2-Dichloroethene	ND		100	21
10061-01-5	cis-1,3-Dichloropropene	ND		34	6.7

FORM I 8260C

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FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82665-1

SDG No.: \_\_\_\_\_

Client Sample ID: 18111123 Lab Sample ID: 580-82665-8

Matrix: Solid Lab File ID: 121918015.D

Analysis Method: 8260C Date Collected: 12/11/2018 09:50

Sample wt/vol: 11.57(g) Date Analyzed: 12/19/2018 16:08

Soil Aliquot Vol: 1.075 (mL) Dilution Factor: 1

Soil Extract Vol.: 10(mL) GC Column: DB-VRX ID: 0.25(mm)

% Moisture: 30.5 Level: (low/med) Medium

Analysis Batch No.: 291581 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
124-48-1	Dibromochloromethane	ND		67	19
74-95-3	Dibromomethane	ND		100	12
75-71-8	Dichlorodifluoromethane	ND		340	77
100-41-4	Ethylbenzene	190		67	15
87-68-3	Hexachlorobutadiene	ND		250	56
98-82-8	Isopropylbenzene	110		67	14
1634-04-4	Methyl tert-butyl ether	ND		67	10
75-09-2	Methylene Chloride	ND		420	110
179601-23-1	m-Xylene & p-Xylene	770		340	25
91-20-3	Naphthalene	250		170	48
104-51-8	n-Butylbenzene	580		250	42
103-65-1	N-Propylbenzene	260		67	12
95-47-6	o-Xylene	150		100	23
135-98-8	sec-Butylbenzene	57	JQ	67	14
100-42-5	Styrene	ND		67	10
98-06-6	t-Butylbenzene	ND		67	13
127-18-4	Tetrachloroethene	ND		67	8.9
108-88-3	Toluene	150	J	250	23
156-60-5	trans-1,2-Dichloroethene	ND		100	25
10061-02-6	trans-1,3-Dichloropropene	ND		67	12
79-01-6	Trichloroethene	ND		100	37
75-69-4	Trichlorofluoromethane	ND		340	19
75-01-4	Vinyl chloride	ND		250	44

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	91		80-121
460-00-4	4-Bromofluorobenzene (Surr)	93		80-120
1868-53-7	Dibromofluoromethane (Surr)	101		80-120
2037-26-5	Toluene-d8 (Surr)	98		80-120
98-08-8	Trifluorotoluene (Surr)	96		80-120

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FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82665-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111123 RA Lab Sample ID: 580-82665-8 RA  
 Matrix: Solid Lab File ID: L2018020.D  
 Analysis Method: 8260C Date Collected: 12/11/2018 09:50  
 Sample wt/vol: 11.57(g) Date Analyzed: 12/20/2018 19:13  
 Soil Aliquot Vol: 1.075 (mL) Dilution Factor: 1  
 Soil Extract Vol.: 10(mL) GC Column: DB-VRX ID: 0.25 (mm)  
 % Moisture: 30.5 Level: (low/med) Medium  
 Analysis Batch No.: 291805 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
71-43-2	Benzene	16	J <i>mg</i>	50	13

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	103		80-121
460-00-4	4-Bromofluorobenzene (Surr)	113		80-120
1868-53-7	Dibromofluoromethane (Surr)	100		80-120
2037-26-5	Toluene-d8 (Surr)	93		80-120
98-08-8	Trifluorotoluene (Surr)	91		80-120



FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle

Job No.: 580-82665-1

SDG No.: \_\_\_\_\_

Client Sample ID: 18111124

Lab Sample ID: 580-82665-9

Matrix: Solid

Lab File ID: 121918016.D

Analysis Method: 8260C

Date Collected: 12/11/2018 11:30

Sample wt/vol: 9.73(g)

Date Analyzed: 12/19/2018 16:34

Soil Aliquot Vol: 1.075 (mL)

Dilution Factor: 1

Soil Extract Vol.: 10(mL)

GC Column: DB-VRX ID: 0.25(mm)

% Moisture: 33.5

Level: (low/med) Medium

Analysis Batch No.: 291581

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
630-20-6	1,1,1,2-Tetrachloroethane	ND		82	22
71-55-6	1,1,1-Trichloroethane	ND		82	20
79-34-5	1,1,2,2-Tetrachloroethane	ND		41	16
79-00-5	1,1,2-Trichloroethane	ND		41	15
75-34-3	1,1-Dichloroethane	ND		82	8.6
75-35-4	1,1-Dichloroethene	ND		82	25
563-58-6	1,1-Dichloropropene	ND		82	11
87-61-6	1,2,3-Trichlorobenzene	ND		310	66
96-18-4	1,2,3-Trichloropropane	ND		82	24
120-82-1	1,2,4-Trichlorobenzene	ND		120	32
95-63-6	1,2,4-Trimethylbenzene	ND		82	28
96-12-8	1,2-Dibromo-3-Chloropropane	ND		510	81
106-93-4	1,2-Dibromoethane	ND		41	7.8
95-50-1	1,2-Dichlorobenzene	ND		82	18
107-06-2	1,2-Dichloroethane	ND		41	11
78-87-5	1,2-Dichloropropane	ND		41	14
108-67-8	1,3,5-Trimethylbenzene	ND		82	16
541-73-1	1,3-Dichlorobenzene	ND		120	27
142-28-9	1,3-Dichloropropane	ND		120	28
106-46-7	1,4-Dichlorobenzene	ND		120	22
594-20-7	2,2-Dichloropropane	ND		82	25
95-49-8	2-Chlorotoluene	ND		82	18
106-43-4	4-Chlorotoluene	ND		82	20
99-87-6	4-Isopropyltoluene	ND		82	21
71-43-2	Benzene	ND		61	16
108-86-1	Bromobenzene	ND		200	35
74-97-5	Bromochloromethane	ND		82	13
75-27-4	Bromodichloromethane	ND		120	27
75-25-2	Bromoform	ND		410	54
74-83-9	Bromomethane	ND		410	27
56-23-5	Carbon tetrachloride	ND		41	7.8
108-90-7	Chlorobenzene	ND		82	20
75-00-3	Chloroethane	ND		820	110
67-66-3	Chloroform	ND		82	8.6
74-87-3	Chloromethane	ND		200	21
156-59-2	cis-1,2-Dichloroethene	ND		120	26

FORM I 8260C





FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle

Job No.: 580-82665-1

SDG No.: \_\_\_\_\_

Client Sample ID: 18111124

Lab Sample ID: 580-82665-9

Matrix: Solid

Lab File ID: 121918016.D

Analysis Method: 8260C

Date Collected: 12/11/2018 11:30

Sample wt/vol: 9.73(g)

Date Analyzed: 12/19/2018 16:34

Soil Aliquot Vol: 1.075 (mL)

Dilution Factor: 1

Soil Extract Vol.: 10(mL)

GC Column: DB-VRX ID: 0.25(mm)

% Moisture: 33.5

Level: (low/med) Medium

Analysis Batch No.: 291581

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
10061-01-5	cis-1,3-Dichloropropene	ND		41	8.2
124-48-1	Dibromochloromethane	ND		82	23
74-95-3	Dibromomethane	ND		120	15
75-71-8	Dichlorodifluoromethane	ND		410	94
100-41-4	Ethylbenzene	ND		82	19
87-68-3	Hexachlorobutadiene	ND		310	68
98-82-8	Isopropylbenzene	ND		82	18
1634-04-4	Methyl tert-butyl ether	ND		82	12
75-09-2	Methylene Chloride	ND	<i>fm</i>	510	130
179601-23-1	m-Xylene & p-Xylene	ND		410	31
91-20-3	Naphthalene	ND		200	58
104-51-8	n-Butylbenzene	ND		310	51
103-65-1	N-Propylbenzene	ND		82	14
95-47-6	o-Xylene	ND		120	27
135-98-8	sec-Butylbenzene	ND		82	18
100-42-5	Styrene	ND		82	12
98-06-6	t-Butylbenzene	ND		82	16
127-18-4	Tetrachloroethene	ND		82	11
108-88-3	Toluene	ND	<i>fm</i>	310	28
156-60-5	trans-1,2-Dichloroethene	ND	<i>fm</i>	120	30
10061-02-6	trans-1,3-Dichloropropene	ND		82	14
79-01-6	Trichloroethene	ND		120	45
75-69-4	Trichlorofluoromethane	ND		410	23
75-01-4	Vinyl chloride	ND		310	54

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	91		80-121
460-00-4	4-Bromofluorobenzene (Surr)	96		80-120
1868-53-7	Dibromofluoromethane (Surr)	99		80-120
2037-26-5	Toluene-d8 (Surr)	98		80-120
98-08-8	Trifluorotoluene (Surr)	100		80-120



FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle

Job No.: 580-82665-1

SDG No.: \_\_\_\_\_

Client Sample ID: 18111125

Lab Sample ID: 580-82665-10

Matrix: Solid

Lab File ID: 121918017.D

Analysis Method: 8260C

Date Collected: 12/12/2018 07:00

Sample wt/vol: 10(g)

Date Analyzed: 12/19/2018 16:59

Soil Aliquot Vol: 1.075 (mL)

Dilution Factor: 1

Soil Extract Vol.: 10(mL)

GC Column: DB-VRX ID: 0.25 (mm)

% Moisture: \_\_\_\_\_

Level: (low/med) Medium

Analysis Batch No.: 291581

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
630-20-6	1,1,1,2-Tetrachloroethane	ND		40	11
71-55-6	1,1,1-Trichloroethane	ND		40	9.6
79-34-5	1,1,2,2-Tetrachloroethane	ND		20	7.6
79-00-5	1,1,2-Trichloroethane	ND		20	7.4
75-34-3	1,1-Dichloroethane	ND		40	4.2
75-35-4	1,1-Dichloroethene	ND		40	12
563-58-6	1,1-Dichloropropene	ND		40	5.3
87-61-6	1,2,3-Trichlorobenzene	ND		150	32
96-18-4	1,2,3-Trichloropropane	ND		40	12
120-82-1	1,2,4-Trichlorobenzene	ND		60	15
95-63-6	1,2,4-Trimethylbenzene	ND		40	14
96-12-8	1,2-Dibromo-3-Chloropropane	ND		250	40
106-93-4	1,2-Dibromoethane	ND		20	3.8
95-50-1	1,2-Dichlorobenzene	ND		40	8.7
107-06-2	1,2-Dichloroethane	ND		20	5.5
78-87-5	1,2-Dichloropropane	ND	*	20	6.6
108-67-8	1,3,5-Trimethylbenzene	ND		40	7.6
541-73-1	1,3-Dichlorobenzene	ND		60	13
142-28-9	1,3-Dichloropropane	ND		60	14
106-46-7	1,4-Dichlorobenzene	ND		60	11
594-20-7	2,2-Dichloropropane	ND		40	12
95-49-8	2-Chlorotoluene	ND		40	8.8
106-43-4	4-Chlorotoluene	ND		40	9.8
99-87-6	4-Isopropyltoluene	ND		40	10
71-43-2	Benzene	ND	*	30	7.6
108-86-1	Bromobenzene	ND		100	17
74-97-5	Bromochloromethane	ND		40	6.2
75-27-4	Bromodichloromethane	ND		60	13
75-25-2	Bromoform	ND		200	26
74-83-9	Bromomethane	ND		200	13
56-23-5	Carbon tetrachloride	ND		20	3.8
108-90-7	Chlorobenzene	ND		40	9.8
75-00-3	Chloroethane	ND	*	400	54
67-66-3	Chloroform	ND		40	4.2
74-87-3	Chloromethane	ND		100	10
156-59-2	cis-1,2-Dichloroethene	ND		60	13

FORM I 8260C



FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82665-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111125 Lab Sample ID: 580-82665-10  
 Matrix: Solid Lab File ID: 121918017.D  
 Analysis Method: 8260C Date Collected: 12/12/2018 07:00  
 Sample wt/vol: 10(g) Date Analyzed: 12/19/2018 16:59  
 Soil Aliquot Vol: 1.075 (mL) Dilution Factor: 1  
 Soil Extract Vol.: 10(mL) GC Column: DB-VRX ID: 0.25(mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Medium  
 Analysis Batch No.: 291581 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
10061-01-5	cis-1,3-Dichloropropene	ND		20	4.0
124-48-1	Dibromochloromethane	ND		40	11
74-95-3	Dibromomethane	ND		60	7.4
75-71-8	Dichlorodifluoromethane	ND		200	46
100-41-4	Ethylbenzene	ND		40	9.1
87-68-3	Hexachlorobutadiene	ND		150	33
98-82-8	Isopropylbenzene	ND		40	8.6
1634-04-4	Methyl tert-butyl ether	ND		40	6.0
75-09-2	Methylene Chloride	ND		250	65
179601-23-1	m-Xylene & p-Xylene	ND		200	15
91-20-3	Naphthalene	ND		100	28
104-51-8	n-Butylbenzene	ND		150	25
103-65-1	N-Propylbenzene	ND		40	6.9
95-47-6	o-Xylene	ND		60	13
135-98-8	sec-Butylbenzene	ND		40	8.6
100-42-5	Styrene	ND		40	6.1
98-06-6	t-Butylbenzene	ND		40	7.7
127-18-4	Tetrachloroethene	ND		40	5.3
108-88-3	Toluene	ND		150	14
156-60-5	trans-1,2-Dichloroethene	ND		60	15
10061-02-6	trans-1,3-Dichloropropene	ND		40	7.0
79-01-6	Trichloroethene	ND		60	22
75-69-4	Trichlorofluoromethane	ND		200	11
75-01-4	Vinyl chloride	ND		150	26

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	97		80-121
460-00-4	4-Bromofluorobenzene (Surr)	96		80-120
1868-53-7	Dibromofluoromethane (Surr)	101		80-120
2037-26-5	Toluene-d8 (Surr)	98		80-120
98-08-8	Trifluorotoluene (Surr)	101		80-120





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### MEMORANDUM

DATE: January 7, 2019

TO: Steve Hall, START-IV Project Manager, E & E, Seattle, Washington

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington *MW*

SUBJ: **Organic Data Quality Assurance Review, May Creek Removal Action Site, Renton, Washington**

REF: TO: TO-68HE0718F0470      PAN: 1004530.0470.001.01

The data quality assurance review of five soil samples collected from the May Creek Removal Action site located in Renton, Washington, has been completed. Analysis for Extended Diesel Range Total Petroleum Hydrocarbons (Ecology Method NWTPH-Dx) was performed by Test America, Inc., Tacoma, Washington. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Manual Process (S2B/4VM).

The samples were numbered:

18111119

18111120

18111121

18111122

18111123

#### Data Qualifications:

**1. Sample Holding Times: Acceptable.**

The samples were maintained at  $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ . The samples were collected on December 10 and 11, 2018, extracted on December 17, 2018, and analyzed by December 30, 2018, therefore meeting QC criteria of less than 14 days between collection and extraction for soil samples and less than 40 days between extraction and analysis.

**2. Initial Calibration: Acceptable.**

Calculations were verified as correct. All relative percent differences (RPDs) were within the laboratory control limits.

**3. Continuing Calibration: Acceptable.**

Calculations were verified as correct. All percent differences (%Ds) were within the laboratory control limits.

**4. Error Determination: Not Performed.**

Samples necessary for bias and precision determination were not provided to the laboratory. All samples were flagged RND (Recovery Not Determined) and PND (Precision Not Determined), although





the flags are not found on the Form I's.

**5. Blanks: Acceptable.**

A method blank was analyzed for each extraction batch for each matrix and analysis system. Diesel- and motor oil-range TPHs were not detected in the method blank.

**6. System Monitoring Compounds (SMC): Acceptable.**

All recoveries of the SMCs were greater than 10% and within QC limits except when diluted due to the sample matrix; no actions were taken based on these outliers.

**7. Performance Evaluation Samples: Not Provided.**

Performance evaluation samples were not provided to the laboratory.

**8. Matrix Spike (MS) and MS Duplicate (MSD): Acceptable.**

MS and MSD results were within QC limits.

**9. Blank Spike (BS) and BS Duplicate (BSD): Satisfactory.**

BS and BSD recoveries were within QC limits except dinoseb with a high matrix spike duplicate recovery; no action was taken based on the spike outlier alone.

**10. Duplicates: Acceptable.**

All duplicate and spike duplicate results were within QC limits.

**11. Quantitation and Quantitation Limits: Acceptable.**

Sample concentrations were correctly calculated.

**12. Laboratory Contact: Not Required.**

No laboratory contact was required.

**13. Overall Assessment of Data for Use**

From the laboratory case narrative: The following samples contained a hydrocarbon pattern in the diesel range; however, the elution pattern was later than the typical diesel fuel pattern used by the laboratory for quantitative purposes: 18111119, 18111120, 18111121, 18111122, and 18111123. Associated sample results were qualified as estimated quantities with an unknown bias (JK).

A total of ten results were validated in this data memorandum. No sample results were qualified as estimated quantities (J) based on duplicate precision outliers, spike accuracy outliers, holding time outliers, incorrect sample containers, or sample temperature outliers. No sample results were rejected (R).

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result.



The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the analytical method(s), the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, and/or the Office of Emergency and Remedial Response Publication "National Functional Guidelines for Superfund Organic Methods Data Review, January 2017". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

#### Data Qualifiers and Definitions

- H - The sample result is biased high.
- J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
- K - The bias of the sample is not known.
- L - The sample result is biased low.
- Q - Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.
- R - The data is rejected and unusable. The analyte may or may not be present in the sample.
- U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.



FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82665-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111119 Lab Sample ID: 580-82665-4  
 Matrix: Solid Lab File ID: 028F2801.D  
 Analysis Method: NWTPH-Dx Date Collected: 12/10/2018 14:20  
 Extraction Method: 3546 Date Extracted: 12/17/2018 10:49  
 Sample wt/vol: 10.311(g) Date Analyzed: 12/27/2018 19:38  
 Con. Extract Vol.: 10(mL) Dilution Factor: 1  
 Injection Volume: 1(uL) GC Column: ZB-1HT ID: 0.25(mm)  
 % Moisture: 17.9 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 292099 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00163	#2 Diesel (C10-C24)	2300	JK	59	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	80		50-150

*MW 1-7-19*





FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82665-1  
SDG No.: \_\_\_\_\_  
Client Sample ID: 18111119 Lab Sample ID: 580-82665-4  
Matrix: Solid Lab File ID: 029F2901.D  
Analysis Method: NWTPH-Dx Date Collected: 12/10/2018 14:20  
Extraction Method: 3546 Date Extracted: 12/17/2018 10:49  
Sample wt/vol: 10.311(g) Date Analyzed: 12/30/2018 00:28  
Con. Extract Vol.: 10(mL) Dilution Factor: 50  
Injection Volume: 1(uL) GC Column: ZB-1HT ID: 0.25(mm)  
% Moisture: 17.9 GPC Cleanup: (Y/N) N  
Analysis Batch No.: 292278 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00299	Motor Oil (>C24-C36)	22000		3000	1000

*Mw 1-7-18*



FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82665-1  
SDG No.: \_\_\_\_\_  
Client Sample ID: 18111120 Lab Sample ID: 580-82665-5  
Matrix: Solid Lab File ID: 029F2901.D  
Analysis Method: NWTPH-Dx Date Collected: 12/10/2018 15:00  
Extraction Method: 3546 Date Extracted: 12/17/2018 10:49  
Sample wt/vol: 10.936(g) Date Analyzed: 12/27/2018 20:00  
Con. Extract Vol.: 10(mL) Dilution Factor: 2  
Injection Volume: 1(uL) GC Column: ZB-1HT ID: 0.25(mm)  
% Moisture: 10.0 GPC Cleanup: (Y/N) N  
Analysis Batch No.: 292099 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00163	#2 Diesel (C10-C24)	790	JK	100	25
STL00299	Motor Oil (>C24-C36)	4700		100	36

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	73		50-150

Handwritten signature/initials: *JK 12/27/18*

FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82665-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111121 Lab Sample ID: 580-82665-6  
 Matrix: Solid Lab File ID: 030F3001.D  
 Analysis Method: NWTPH-Dx Date Collected: 12/10/2018 15:50  
 Extraction Method: 3546 Date Extracted: 12/17/2018 10:49  
 Sample wt/vol: 10.300(g) Date Analyzed: 12/27/2018 20:22  
 Con. Extract Vol.: 10(mL) Dilution Factor: 20  
 Injection Volume: 1(uL) GC Column: ZB-1HT ID: 0.25(mm)  
 % Moisture: 16.6 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 292099 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00163	#2 Diesel (C10-C24)	42000	JK	1200	290
STL00299	Motor Oil (>C24-C36)	29000		1200	410

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	98311	JK	50-150

*Handwritten:* MW 1-7-19

FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82665-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111122 Lab Sample ID: 580-82665-7  
 Matrix: Solid Lab File ID: 031F3101.D  
 Analysis Method: NWTPH-Dx Date Collected: 12/11/2018 09:40  
 Extraction Method: 3546 Date Extracted: 12/17/2018 10:49  
 Sample wt/vol: 11.048(g) Date Analyzed: 12/27/2018 20:44  
 Con. Extract Vol.: 10(mL) Dilution Factor: 20  
 Injection Volume: 1(uL) GC Column: ZB-1HT ID: 0.25(mm)  
 % Moisture: 36.5 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 292099 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00163	#2 Diesel (C10-C24)	730	J <u>Q</u>	1400	350
STL00299	Motor Oil (>C24-C36)	2700		1400	500

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	0	<u>X</u>	50-150

FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82665-1  
SDG No.: \_\_\_\_\_  
Client Sample ID: 18111123 Lab Sample ID: 580-82665-8  
Matrix: Solid Lab File ID: 032F3201.D  
Analysis Method: NWTPH-Dx Date Collected: 12/11/2018 09:50  
Extraction Method: 3546 Date Extracted: 12/17/2018 10:49  
Sample wt/vol: 10.939(g) Date Analyzed: 12/27/2018 21:06  
Con. Extract Vol.: 10(mL) Dilution Factor: 20  
Injection Volume: 1(uL) GC Column: ZB-1HT ID: 0.25(mm)  
% Moisture: 30.5 GPC Cleanup: (Y/N) N  
Analysis Batch No.: 292099 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00163	#2 Diesel (C10-C24)	1200	J <i>Q</i>	1300	320
STL00299	Motor Oil (>C24-C36)	5800		1300	460

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	0	<i>me</i>	50-150

*Jan 17-18*



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### MEMORANDUM

DATE: January 7, 2019

TO: Steve Hall, START-IV Project Manager, E & E, Seattle, Washington

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington *MW*

SUBJ: **Organic Data Quality Assurance Review, May Creek Removal Action Site, Renton, Washington**

REF: TO: TO-68HE0718F0470 PAN: 1004530.0470.001.01

The data quality assurance review of nine soil samples collected from the May Creek Removal Action site located in Renton, Washington, has been completed. Hydrocarbon Identification analysis (Ecology Method NWTPH-HCID) was performed by Test America, Inc., Tacoma, Washington. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Manual Process (S2B/4VM).

The samples were numbered:

18111116	18111117	18111118	18111119	18111120
18111121	18111122	18111123	18111124	

#### Data Qualifications:

##### 1. **Sample Holding Times: Acceptable.**

The samples were maintained within the QC limits of  $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ . The samples were collected between December 10 and 11, 2018, extracted on December 17, 2018, and analyzed by December 18, 2018, therefore meeting QC criteria of less than 14 days between collection and extraction for soil samples and less than 40 days between extraction and analysis.

##### 2. **Calibration: Acceptable.**

Calculations were verified as correct.

##### 3. **Blanks: Acceptable.**

A method blank was analyzed for each extraction batch for each matrix and analysis system. TPHs were not detected in the method blank.

##### 4. **System Monitoring Compounds (SMC): Acceptable.**

All recoveries of the SMCs were within QC limits except for samples 18111121, 18111123, and 18111124. According to the laboratory, evidence of matrix interference is present; therefore, no actions





were required.

**5. Performance Evaluation Samples: Not Provided.**

Performance evaluation samples were not provided to the laboratory.

**6. Duplicates: Acceptable.**

All duplicate results were within QC limits.

**7. Quantitation and Quantitation Limits: Acceptable.**

Sample concentrations were correctly calculated.

**8. Laboratory Contact: Not Required.**

No laboratory contact was required.

**9. Overall Assessment of Data for Use**

A total of 27 results were validated in this data memorandum. No sample results were qualified as estimated quantities (J) based on duplicate precision outliers, holding time outliers, incorrect sample containers, or sample temperature outliers. No sample results were rejected (R).

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the analytical method(s), the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, and/or the Office of Emergency and Remedial Response Publication "National Functional Guidelines for Superfund Organic Methods Data Review, January 2017". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

- J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
- Q - Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.
- R - The data is rejected and unusable. The analyte may or may not be present in the sample.
- U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.



FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82665-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111116 Lab Sample ID: 580-82665-1  
 Matrix: Solid Lab File ID: 056B0601.D  
 Analysis Method: NWTPH-HCID Date Collected: 12/10/2018 11:00  
 Extraction Method: 3546 Date Extracted: 12/17/2018 10:49  
 Sample wt/vol: 10.949(g) Date Analyzed: 12/18/2018 20:26  
 Con. Extract Vol.: 10(mL) Dilution Factor: 1  
 Injection Volume: 2(uL) GC Column: ZB-1HT ID: 0.25(mm)  
 % Moisture: 17.1 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 291503 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	RL
STL00299	Motor Oil	ND		110	110
STL00228	Gasoline	ND		22	22
STL00096	#2 Diesel (>C12-C24)	ND		55	55

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	74		50-150
460-00-4	4-Bromofluorobenzene (Surr)	78		50-150

*Handwritten signature and date: Jan 17-19*

FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82665-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111117 Lab Sample ID: 580-82665-2  
 Matrix: Solid Lab File ID: 058B0801.D  
 Analysis Method: NWTPH-HCID Date Collected: 12/10/2018 11:30  
 Extraction Method: 3546 Date Extracted: 12/17/2018 10:49  
 Sample wt/vol: 10.681(g) Date Analyzed: 12/18/2018 21:10  
 Con. Extract Vol.: 10(mL) Dilution Factor: 1  
 Injection Volume: 2(uL) GC Column: ZB-1HT ID: 0.25(mm)  
 % Moisture: 19.1 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 291503 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	RL
STL00299	Motor Oil	120		120	120
STL00228	Gasoline	ND		23	23
STL00096	#2 Diesel (>C12-C24)	ND		58	58

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	88		50-150
460-00-4	4-Bromofluorobenzene (Surr)	88		50-150

*mw 12-16*

FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82665-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111118 Lab Sample ID: 580-82665-3  
 Matrix: Solid Lab File ID: 059B0901.D  
 Analysis Method: NWTPH-HCID Date Collected: 12/10/2018 13:45  
 Extraction Method: 3546 Date Extracted: 12/17/2018 10:49  
 Sample wt/vol: 11.861(g) Date Analyzed: 12/18/2018 21:32  
 Con. Extract Vol.: 10(mL) Dilution Factor: 1  
 Injection Volume: 2(uL) GC Column: ZB-1HT ID: 0.25(mm)  
 % Moisture: 21.4 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 291503 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	RL
STL00299	Motor Oil	ND		110	110
STL00228	Gasoline	ND		21	21
STL00096	#2 Diesel (>C12-C24)	ND		54	54

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	84		50-150
460-00-4	4-Bromofluorobenzene (Surr)	85		50-150

*Handwritten signature: JAWI-H9*

FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82665-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111119 Lab Sample ID: 580-82665-4  
 Matrix: Solid Lab File ID: 060B1001.D  
 Analysis Method: NWTPH-HCID Date Collected: 12/10/2018 14:20  
 Extraction Method: 3546 Date Extracted: 12/17/2018 10:49  
 Sample wt/vol: 10.311(g) Date Analyzed: 12/18/2018 21:54  
 Con. Extract Vol.: 10(mL) Dilution Factor: 1  
 Injection Volume: 2(uL) GC Column: ZB-1HT ID: 0.25(mm)  
 % Moisture: 17.9 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 291503 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	RL
STL00299	Motor Oil	25000		120	120
STL00228	Gasoline	<del>ND</del>		24	24
STL00096	#2 Diesel (>C12-C24)	3500		59	59

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	96		50-150
460-00-4	4-Bromofluorobenzene (Surr)	90		50-150

*Mw 1719*



FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82665-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111120 Lab Sample ID: 580-82665-5  
 Matrix: Solid Lab File ID: 061B1101.D  
 Analysis Method: NWTPH-HCID Date Collected: 12/10/2018 15:00  
 Extraction Method: 3546 Date Extracted: 12/17/2018 10:49  
 Sample wt/vol: 10.936(g) Date Analyzed: 12/18/2018 22:16  
 Con. Extract Vol.: 10(mL) Dilution Factor: 3  
 Injection Volume: 2(uL) GC Column: ZB-1HT ID: 0.25(mm)  
 % Moisture: 10.0 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 291503 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	RL
STL00299	Motor Oil	6500		300	300
STL00228	Gasoline	<del>ND</del>		61	61
STL00096	#2 Diesel (>C12-C24)	1400		150	150

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	77		50-150
460-00-4	4-Bromofluorobenzene (Surr)	83		50-150

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FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82665-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111121 Lab Sample ID: 580-82665-6  
 Matrix: Solid Lab File ID: 062B1201.D  
 Analysis Method: NWTPH-HCID Date Collected: 12/10/2018 15:50  
 Extraction Method: 3546 Date Extracted: 12/17/2018 10:49  
 Sample wt/vol: 10.300(g) Date Analyzed: 12/18/2018 22:37  
 Con. Extract Vol.: 10(mL) Dilution Factor: 10  
 Injection Volume: 2(uL) GC Column: ZB-1HT ID: 0.25(mm)  
 % Moisture: 16.6 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 291503 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	RL
STL00299	Motor Oil	36000		1200	1200
STL00228	Gasoline	4200		230	230
STL00096	#2 Diesel (>C12-C24)	59000		580	580

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	12	<i>Law</i>	50-150
460-00-4	4-Bromofluorobenzene (Surr)	58		50-150

FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82665-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111122 Lab Sample ID: 580-82665-7  
 Matrix: Solid Lab File ID: 063B1301.D  
 Analysis Method: NWTPH-HCID Date Collected: 12/11/2018 09:40  
 Extraction Method: 3546 Date Extracted: 12/17/2018 10:49  
 Sample wt/vol: 11.048(g) Date Analyzed: 12/18/2018 22:59  
 Con. Extract Vol.: 10(mL) Dilution Factor: 20  
 Injection Volume: 2(uL) GC Column: ZB-1HT ID: 0.25(mm)  
 % Moisture: 36.5 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 291503 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	RL
STL00299	Motor Oil	3500		2900	2900
STL00228	Gasoline	<del>NE</del>		570	570
STL00096	#2 Diesel (>C12-C24)	1500		1400	1400

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	100		50-150
460-00-4	4-Bromofluorobenzene (Surr)	97		50-150

FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82665-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111123 Lab Sample ID: 580-82665-8  
 Matrix: Solid Lab File ID: 064B1401.D  
 Analysis Method: NWTPH-HCID Date Collected: 12/11/2018 09:50  
 Extraction Method: 3546 Date Extracted: 12/17/2018 10:49  
 Sample wt/vol: 10.939(g) Date Analyzed: 12/18/2018 23:21  
 Con. Extract Vol.: 10(mL) Dilution Factor: 20  
 Injection Volume: 2(uL) GC Column: ZB-1HT ID: 0.25(mm)  
 % Moisture: 30.5 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 291503 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	RL
STL00299	Motor Oil	7600		2600	2600
STL00228	Gasoline	<del>ND</del>		530	530
STL00096	#2 Diesel (>C12-C24)	1900		1300	1300

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	103		50-150
460-00-4	4-Bromofluorobenzene (Surr)	0.2		50-150

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FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82665-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111124 Lab Sample ID: 580-82665-9  
 Matrix: Solid Lab File ID: 065B1501.D  
 Analysis Method: NWTPH-HCID Date Collected: 12/11/2018 11:30  
 Extraction Method: 3546 Date Extracted: 12/17/2018 10:49  
 Sample wt/vol: 11.131(g) Date Analyzed: 12/18/2018 23:42  
 Con. Extract Vol.: 10(mL) Dilution Factor: 50  
 Injection Volume: 2(uL) GC Column: ZB-1HT ID: 0.25 (mm)  
 % Moisture: 33.5 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 291503 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	RL
STL00299	Motor Oil	ND		6800	6800
STL00228	Gasoline	ND		1400	1400
STL00096	#2 Diesel (>C12-C24)	ND		3400	3400

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	93		50-150
460-00-4	4-Bromofluorobenzene (Surr)	0.2		50-150





## ecology and environment, inc.

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### MEMORANDUM

DATE: January 7, 2019

TO: Steve Hall, START-IV Project Manager, E & E, Seattle, Washington

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington *MW*

SUBJ: **Organic Data Quality Assurance Review, May Creek Removal Action Site, Renton, Washington**

REF: TO: TO-68HE0718F0470 PAN: 1004530.0470.001.01

The data quality assurance review of 1 soil sample collected from the May Creek Removal Action site located in Renton, Washington, has been completed. Analysis for Extended Gasoline Range Total Petroleum Hydrocarbons (Ecology Method NWTPH-Gx) analyses was performed by Test America, Inc., Tacoma, Washington. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Manual Process (S2B/4VM).

The sample was numbered: 18111121

#### **Data Qualifications:**

##### **1. Sample Holding Times: Acceptable.**

The sample was maintained and received within the QC limits of  $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ . The sample was collected on December 10, 2018, and were analyzed by December 22, 2018, therefore meeting QC criteria of less than 14 days between collection and analysis for soil samples.

##### **2. Initial Calibration: Acceptable.**

Calculations were verified as correct. All relative percent differences (RPDs) were less than or equal to the laboratory control limits.

##### **3. Continuing Calibration: Acceptable.**

Calculations were verified as correct. All percent differences were less than or equal to the laboratory control limits.

##### **4. Blanks: Acceptable.**

A method blank was analyzed at the required frequency of every 12 hours for each matrix, preparation technique, and analysis system. Gasoline-range TPHs were not detected in the method blank.

##### **5. System Monitoring Compounds (SMC): Acceptable.**

All recoveries of the SMCs were greater than 10% and within QC limits.





**6. Performance Evaluation Samples: Not Provided.**

Performance evaluation samples were not provided to the laboratory.

**7. Blank Spikes (BS) and BS Duplicate (BSD) Analyses: Acceptable.**

BS and BSD results were within laboratory QC limits.

**8. Duplicates: Acceptable.**

All spike duplicate results were within laboratory QC limits.

**9. Quantitation and Quantitation Limits: Acceptable.**

Sample quantitation and sample quantitation limits were correctly calculated.

**10. Laboratory Contact: Not Required.**

No laboratory contact was required.

**11. Overall Assessment of Data for Use**

One result was validated in this data memorandum. No sample results were qualified as estimated quantities (J) based on duplicate precision outliers, spike accuracy outliers, holding time outliers, incorrect sample containers, or sample temperature outliers. No sample results were rejected (R).

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the analytical method(s), the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, and/or the Office of Emergency and Remedial Response Publication "National Functional Guidelines for Superfund Organic Methods Data Review, January 2017". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

- J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
- R - The data is rejected and unusable. The analyte may or may not be present in the sample.
- U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.



FORM I  
GC VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82665-1  
SDG No.: \_\_\_\_\_  
Client Sample ID: 18111121 Lab Sample ID: 580-82665-6  
Matrix: Solid Lab File ID: 122218021.D  
Analysis Method: NWTPH-Gx Date Collected: 12/10/2018 15:50  
Sample wt/vol: 8.32(g) Date Analyzed: 12/22/2018 22:39  
Soil Aliquot Vol: 5 (mL) Dilution Factor: 1  
Soil Extract Vol.: 10 (mL) GC Column: RTX-VRX ID: 0.45 (mm)  
% Moisture: 16.6 Level: (low/med) Medium  
Analysis Batch No.: 291931 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00228	Gasoline	5.5		0.20	0.094

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	82		50-150
98-08-8	Trifluorotoluene (Surr)			





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### MEMORANDUM

DATE: January 14, 2019

TO: Steve Hall, START-IV Project Manager, E & E, Seattle, Washington

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington 

SUBJ: **Organic Data Quality Assurance Review, May Creek Removal Action Site, Renton, Washington**

REF: TO: TO-68HE0718F0470 PAN: 1004530.0470.001.01

The data quality assurance review of eight soil samples collected from the May Creek Removal Action site located in Renton, Washington, has been completed. Diesel-range total petroleum hydrocarbons (Ecology Method NWTPH-Dx) and Hydrocarbon Identification (Ecology Method NWTPH-HCID) analyses were performed by Test America, Inc., Tacoma, Washington. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Manual Process (S2B/4VM).

The samples were numbered:

18111127	18111128	18111129	18111130	18111131
18111132	18111133	18111134		

#### Data Qualifications:

##### 1. Sample Holding Times: Satisfactory.

The samples were received at 6.2°C, slightly above the QC limits of 4°C ± 2°C. The samples were maintained on ice after sample collection; no actions were taken based on this information. The samples were collected between December 10 and 11, 2018, extracted on December 17, 2018, and analyzed by December 27, 2018, therefore meeting QC criteria of less than 14 days between collection and extraction for water samples and less than 40 days between extraction and analysis.

##### 2. Calibration: Acceptable.

Calculations were verified as correct.

##### 3. Blanks: Acceptable.

A method blank was analyzed for each extraction batch for each matrix and analysis system. TPHs were not detected in the method blank.

##### 4. System Monitoring Compounds (SMC): Satisfactory.

All recoveries of the SMCs were within QC limits except the NWTPH-Dx SMC o-Terphenyl

failed the surrogate recovery criteria low for 1811128 (this sample required a dilution which resulted in the surrogate spike concentration in the sample being reduced to a level where the recovery calculation does not provide useful information) and one of the two HCID SMCs were outside control limits for recovery in samples 1811128, 1811130, 1811132, 1811132MS, and 1811132MSD (evidence of matrix interference is present and the other SMC was within QC limits). No actions were taken based on these items.

**5. Blank Spike (BS)/BS Duplicate (BSD)/Matrix Spike (MS)/MS Duplicate (MSD): Acceptable.**

BS/BSD results were within QC limits. The MS/MSD results were not applicable as the sample was diluted 50 times.

**6. Duplicates: Acceptable.**

All spike duplicate results were within QC limits.

**7. Quantitation and Quantitation Limits: Acceptable.**

Sample concentrations were correctly calculated.

**8. Laboratory Contact: Not Required.**

No laboratory contact was required.

**9. Overall Assessment of Data for Use**

Sample 1811128 contained an HCID hydrocarbon pattern in the diesel range; however, the elution pattern was later than the typical diesel fuel pattern used by the laboratory for quantitative purposes. The associated positive result was qualified as an estimated quantity with an unknown bias (JK).

A total of 26 results were validated in this data memorandum. No sample results were qualified as estimated quantities (J) based on duplicate precision outliers, holding time outliers, incorrect sample containers, or sample temperature outliers. No sample results were rejected (R).

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the analytical method(s), the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, and/or the Office of Emergency and Remedial Response Publication "National Functional Guidelines for Superfund Organic Methods Data Review, January 2017". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.



- Q - Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.
- R - The data is rejected and unusable. The analyte may or may not be present in the sample.
- U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.

FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82667-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111128 Lab Sample ID: 580-82667-4  
 Matrix: Solid Lab File ID: 033F3301.D  
 Analysis Method: NWTPH-Dx Date Collected: 12/12/2018 10:00  
 Extraction Method: 3546 Date Extracted: 12/17/2018 10:49  
 Sample wt/vol: 10.574(g) Date Analyzed: 12/27/2018 21:27  
 Con. Extract Vol.: 10(mL) Dilution Factor: 10  
 Injection Volume: 1(uL) GC Column: ZB-1HT ID: 0.25(mm)  
 % Moisture: 8.3 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 292099 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00163	#2 Diesel (C10-C24)	550		520	130
STL00299	Motor Oil (>C24-C36)	1100		520	180

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	42	<i>[Signature]</i>	50-150

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FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82667-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111127 Lab Sample ID: 580-82667-3  
 Matrix: Solid Lab File ID: 066B1601.D  
 Analysis Method: NWTPH-HCID Date Collected: 12/11/2018 08:40  
 Extraction Method: 3546 Date Extracted: 12/17/2018 10:49  
 Sample wt/vol: 10.027(g) Date Analyzed: 12/19/2018 00:04  
 Con. Extract Vol.: 10(mL) Dilution Factor: 1  
 Injection Volume: 2(uL) GC Column: ZB-1HT ID: 0.25(mm)  
 % Moisture: 15.4 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 291503 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	RL
STL00299	Motor Oil	160		120	120
STL00228	Gasoline	ND		24	24
STL00096	#2 Diesel (>C12-C24)	74		59	59

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	77		50-150
460-00-4	4-Bromofluorobenzene (Surr)	82		50-150

*MW 1/4/19*

FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82667-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111128 Lab Sample ID: 580-82667-4  
 Matrix: Solid Lab File ID: 068B1801.D  
 Analysis Method: NWTPH-HCID Date Collected: 12/12/2018 10:00  
 Extraction Method: 3546 Date Extracted: 12/17/2018 10:49  
 Sample wt/vol: 10.574(g) Date Analyzed: 12/19/2018 00:48  
 Con. Extract Vol.: 10(mL) Dilution Factor: 10  
 Injection Volume: 2(uL) GC Column: ZB-1HT ID: 0.25(mm)  
 % Moisture: 8.3 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 291503 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	RL
STL00299	Motor Oil	1500		1000	1000
STL00228	Gasoline	<del>ND</del>		210	210
STL00096	#2 Diesel (>C12-C24)	780	JK	520	520

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	100		50-150
460-00-4	4-Bromofluorobenzene (Surr)	0.04	<del>JK</del>	50-150

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FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82667-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111129 Lab Sample ID: 580-82667-5  
 Matrix: Solid Lab File ID: 069B1901.D  
 Analysis Method: NWTPH-HCID Date Collected: 12/12/2018 10:10  
 Extraction Method: 3546 Date Extracted: 12/17/2018 10:49  
 Sample wt/vol: 11.330(g) Date Analyzed: 12/19/2018 01:09  
 Con. Extract Vol.: 10(mL) Dilution Factor: 1  
 Injection Volume: 2(uL) GC Column: ZB-1HT ID: 0.25(mm)  
 % Moisture: 9.4 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 291503 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	RL
STL00299	Motor Oil	170		97	97
STL00228	Gasoline	ND		19	19
STL00096	#2 Diesel (>C12-C24)	ND		49	49

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	82		50-150
460-00-4	4-Bromofluorobenzene (Surr)	84		50-150

*M H449*

FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82667-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111130 Lab Sample ID: 580-82667-6  
 Matrix: Solid Lab File ID: 070B2001.D  
 Analysis Method: NWTPH-HCID Date Collected: 12/12/2018 12:00  
 Extraction Method: 3546 Date Extracted: 12/17/2018 10:49  
 Sample wt/vol: 10.030(g) Date Analyzed: 12/19/2018 01:31  
 Con. Extract Vol.: 10(mL) Dilution Factor: 50  
 Injection Volume: 2(uL) GC Column: ZB-1HT ID: 0.25(mm)  
 % Moisture: 15.2 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 291503 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	RL
STL00299	Motor Oil	ND		5900	5900
STL00228	Gasoline	ND		1200	1200
STL00096	#2 Diesel (>C12-C24)	ND		2900	2900

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	104		50-150
460-00-4	4-Bromofluorobenzene (Surr)	0.2		50-150

*mw 1/4/19*

FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82667-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111131 Lab Sample ID: 580-82667-7  
 Matrix: Solid Lab File ID: 071B2101.D  
 Analysis Method: NWTPH-HCID Date Collected: 12/12/2018 12:10  
 Extraction Method: 3546 Date Extracted: 12/17/2018 10:49  
 Sample wt/vol: 10.482(g) Date Analyzed: 12/19/2018 01:53  
 Con. Extract Vol.: 10(mL) Dilution Factor: 2  
 Injection Volume: 2(uL) GC Column: ZB-1HT ID: 0.25(mm)  
 % Moisture: 8.5 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 291503 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	RL
STL00299	Motor Oil	380		210	210
STL00228	Gasoline	ND		42	42
STL00096	#2 Diesel (>C12-C24)	ND		100	100

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	82		50-150
460-00-4	4-Bromofluorobenzene (Surr)	86		50-150



FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82667-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111132 Lab Sample ID: 580-82667-8  
 Matrix: Solid Lab File ID: 072B2201.D  
 Analysis Method: NWTPH-HCID Date Collected: 12/12/2018 14:30  
 Extraction Method: 3546 Date Extracted: 12/17/2018 10:49  
 Sample wt/vol: 10.603(g) Date Analyzed: 12/19/2018 02:14  
 Con. Extract Vol.: 10(mL) Dilution Factor: 50  
 Injection Volume: 2(uL) GC Column: ZB-1HT ID: 0.25(mm)  
 % Moisture: 10.1 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 291503 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	RL
STL00299	Motor Oil	ND		5200	5200
STL00228	Gasoline	ND		1000	1000
STL00096	#2 Diesel (>C12-C24)	ND		2600	2600

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	79		50-150
460-00-4	4-Bromofluorobenzene (Surr)	0.5	X	50-150

FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82667-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111133 Lab Sample ID: 580-82667-9  
 Matrix: Solid Lab File ID: 075B2501.D  
 Analysis Method: NWTPH-HCID Date Collected: 12/12/2018 15:00  
 Extraction Method: 3546 Date Extracted: 12/17/2018 10:54  
 Sample wt/vol: 10.355(g) Date Analyzed: 12/19/2018 03:19  
 Con. Extract Vol.: 10(mL) Dilution Factor: 1  
 Injection Volume: 2(uL) GC Column: ZB-1HT ID: 0.25(mm)  
 % Moisture: 17.7 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 291503 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	RL
STL00299	Motor Oil	560		120	120
STL00228	Gasoline	<del>NA</del>		23	23
STL00096	#2 Diesel (>C12-C24)	75		59	59

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	86		50-150
460-00-4	4-Bromofluorobenzene (Surr)	82		50-150

*MW HHA*

FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82667-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111134 Lab Sample ID: 580-82667-10  
 Matrix: Solid Lab File ID: 076B2601.D  
 Analysis Method: NWTPH-HCID Date Collected: 12/12/2018 15:00  
 Extraction Method: 3546 Date Extracted: 12/17/2018 10:55  
 Sample wt/vol: 10.938(g) Date Analyzed: 12/19/2018 03:41  
 Con. Extract Vol.: 10(mL) Dilution Factor: 1  
 Injection Volume: 2(uL) GC Column: ZB-1HT ID: 0.25(mm)  
 % Moisture: 17.2 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 291503 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	RL
STL00299	Motor Oil	280		110	110
STL00228	Gasoline	ND		22	22
STL00096	#2 Diesel (>C12-C24)	ND		55	55

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	83		50-150
460-00-4	4-Bromofluorobenzene (Surr)	81		50-150

*Mw H419*



## ecology and environment, inc.

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### MEMORANDUM

DATE: January 14, 2019

TO: Steve Hall, START-IV Project Manager, E & E, Seattle, Washington

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington *MW*

SUBJ: **Organic Data Quality Assurance Review, May Creek Removal Action Site, Renton, Washington**

REF: TO: TO-68HE0718F0470 PAN: 1004530.0470.001.01

The data quality assurance review of 2 waste and 9 soil samples collected from the May Creek Removal Action site in Renton, Washington, has been completed. Volatile Organic Compound (VOC) analysis (EPA Method 8260) was performed by Test America, Inc., Tacoma, Washington. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Manual Process (S2B/4VM).

The samples were numbered:

18111003	18111004	18111127	18111128	18111129
18111130	18111131	18111132	18111133	18111134
18111135				

#### **Data Qualifications:**

##### **1. Sample Holding Times: Satisfactory.**

The samples were received at 6.2°C, slightly above the QC limits of 4°C ± 2°C. The samples were maintained on ice after sample collection; no actions were taken based on this information. The samples were collected between December 11 and 12, 2018, were received at the laboratory on December 13, 2018, and were analyzed by January 7, 2019, therefore generally meeting QC criteria of less than 14 days between collection and analysis for soil samples (soil holding times were used in the absence of waste holding times) except the reanalysis of the following samples were performed outside of the analytical holding time due to failure of quality control parameters in the initial analysis: 18111127, 18111128, 18111129, 18111130, 18111131, 18111132, 18111133, 18111134, and 18111135. Associated positive results and sample quantitation limits were qualified as estimated quantities with a low bias (JL or UJL).

##### **2. Tuning: Acceptable.**

Tuning was performed at the beginning of each 12-hour analysis sequence. All results were within QC limits.

##### **3. Initial Calibration: Acceptable.**

All average Relative Response Factors (RRFs) were within the QC limits except a low chloroethane RRF on 11/26/2018; associated sample quantitation limits were rejected (R). All Relative Standard Deviations (RSDs) and/or correlation coefficients were within the QC limits.

**4. Continuing Calibration: Satisfactory.**

All applicable RRFs were within the QC limits except in batch 580-292066 for the trichloroethene and dibromochloromethane; associated sample quantitation limits were rejected (R). All % differences were within the QC limits except: the continuing calibration verification (CCV) associated with batch 580-291982 recovered above the upper control limit for vinyl chloride, benzene, chloroethane, 1,1-dichloropropene, cis-1,2-dichloroethene, chloroform, dichlorodifluoromethane, methylene chloride, 1,1-dichloroethene, 1,2-dichloroethane, trichlorofluoromethane, 1,2-dichloropropane, methyl tert-butyl ether, trans-1,2-dichloroethene, bromomethane, dibromomethane, dichlorobromomethane, chloromethane, 1,1,1-trichloroethane, and 1,1-dichloroethane. The sample (18111127) associated with this CCV was non-detects for the affected analytes; therefore, no actions were required. The CCV associated with batch 580-291982 recovered outside acceptance criteria, low biased, for n-butylbenzene. Positive results and sample quantitation limits associated with low recoveries were qualified as estimated quantities with a low bias (JL or UJL) and positive results associated with high recoveries were qualified as estimated quantities with a high bias (JH).

**5. Blanks: Satisfactory.**

A method blank was analyzed for each 20 sample batch per matrix. There were no detections in any laboratory blank except 1,2,3-trichlorobenzene (40.3 ug/kg), naphthalene (33.3 ug/kg), and toluene (18.2 ug/kg) in the method blank and 1,2,4-trichlorobenzene (0.747 ug/L) and naphthalene (1.01 ug/L) in continuing calibration blank on January 2, 2019. Positive sample results less than the reporting limit were qualified as not detected (U).

**6. System Monitoring Compounds (SMCs): Acceptable.**

All SMC recoveries were within QC limits.

**7. Matrix Spike (MS)/MS Duplicate (MSD)/Blank Spike (BS)/BS Duplicate (BSD) Analysis: Satisfactory.**

Several analytes failed the recovery criteria high for the BS and BSD. These analytes were not detected in the associated samples; therefore, no qualifications were applied. Several analytes failed the recovery criteria low for the MS of sample 18111132MS. Sample matrix interference and/or non-homogeneity are suspected. No actions were taken based on these outliers.

**8. Spike Duplicate Analysis: Satisfactory.**

Spike duplicate analyses were performed per SDG or per matrix per concentration level, whichever was more frequent. All spike duplicate results were within QC limits except several analytes exceeded the RPD limit for sample 18111132MSD. No additional actions were taken based on duplicate outliers alone.

**9. Internal Standards: Acceptable.**

All internal standards were within  $\pm 30$  seconds of the continuing calibration internal standard retention times. All area counts were within 50 % to 200 % of the continuing calibration area counts.

**10. Performance Evaluation Sample Analysis: Not Provided.**

Performance evaluation samples were not provided to the laboratory.

**11. Overall Assessment of Data for Use**

The following samples were received in pre-weighed containers with a label that was added in the field, which will cause a slight low bias in the final results: 18110003, 18110004, 18111127, 18111128,

18111129, 18111130, 18111131, 18111132, 18111133, and 18111134. Positive results and sample quantitation limits were qualified as estimated quantities with a low bias (JL or UJL).

A total of 550 results were validated in this data memorandum. No sample results were qualified as estimated quantities (J) based on duplicate precision outliers, spike accuracy outliers, incorrect sample containers, or sample temperature outliers. A total of 11 sample results were qualified as estimated quantities based on holding time outliers. A total of 27 sample results were rejected (R).

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the analytical method(s), the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, and/or the Office of Emergency and Remedial Response Publication "National Functional Guidelines for Superfund Organic Methods Data Review, January 2017". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

#### Data Qualifiers and Definitions

- H - The sample result is biased high.
- J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
- K - The bias of the sample is not known.
- L - The sample result is biased low.
- N - The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification".
- NJ - The analyte has been "tentatively identified" or "presumptively" as present and the associated numerical value is the estimated concentration in the sample.
- Q - Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.
- R - The data is rejected and unusable. The analyte may or may not be present in the sample.
- U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82667-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18110003 Lab Sample ID: 580-82667-1  
 Matrix: Waste Lab File ID: L1718010.D  
 Analysis Method: 8260C Date Collected: 12/12/2018 16:45  
 Sample wt/vol: 1.01(g) Date Analyzed: 12/17/2018 19:33  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: DB-VRX ID: 0.25 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 291384 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
71-43-2	Benzene	ND		300	75
108-88-3	Toluene	ND		1500	130
100-41-4	Ethylbenzene	ND		400	90
179601-23-1	m-Xylene & p-Xylene	ND		2000	150
95-47-6	o-Xylene	ND		590	130

CAS NO.	SURROGATE	%REC	Q	LIMITS
2037-26-5	Toluene-d8 (Surr)	99		80-120
98-08-8	Trifluorotoluene (Surr)	98		80-120
460-00-4	4-Bromofluorobenzene (Surr)	102		80-120
1868-53-7	Dibromofluoromethane (Surr)	100		80-120
17060-07-0	1,2-Dichloroethane-d4 (Surr)	107		80-121



FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82667-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18110004 Lab Sample ID: 580-82667-2  
 Matrix: Waste Lab File ID: L1718011.D  
 Analysis Method: 8260C Date Collected: 12/12/2018 16:30  
 Sample wt/vol: 0.93(g) Date Analyzed: 12/17/2018 19:59  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: DB-VRX ID: 0.25 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 291384 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
71-43-2	Benzene	ND		320	82
108-88-3	Toluene	ND		1600	150
100-41-4	Ethylbenzene	ND		430	98
179601-23-1	m-Xylene & p-Xylene	ND		2200	160
95-47-6	o-Xylene	ND		650	140

CAS NO.	SURROGATE	%REC	Q	LIMITS
2037-26-5	Toluene-d8 (Surr)	100		80-120
98-08-8	Trifluorotoluene (Surr)	99		80-120
460-00-4	4-Bromofluorobenzene (Surr)	103		80-120
1868-53-7	Dibromofluoromethane (Surr)	100		80-120
17060-07-0	1,2-Dichloroethane-d4 (Surr)	109		80-121

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82667-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111127 Lab Sample ID: 580-82667-3  
 Matrix: Solid Lab File ID: 122418008.D  
 Analysis Method: 8260C Date Collected: 12/11/2018 08:40  
 Sample wt/vol: 11.63(g) Date Analyzed: 12/24/2018 13:13  
 Soil Aliquot Vol: 1.075 (mL) Dilution Factor: 1  
 Soil Extract Vol.: 10(mL) GC Column: DB-VRX ID: 0.25(mm)  
 % Moisture: 15.4 Level: (low/med) Medium  
 Analysis Batch No.: 291982 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
630-20-6	1,1,1,2-Tetrachloroethane	ND		48	13
71-55-6	1,1,1-Trichloroethane	ND		48	11
79-34-5	1,1,2,2-Tetrachloroethane	ND		24	9.1
79-00-5	1,1,2-Trichloroethane	ND		24	8.9
75-34-3	1,1-Dichloroethane	ND		48	5.0
75-35-4	1,1-Dichloroethene	ND		48	15
563-58-6	1,1-Dichloropropene	ND	ln	48	6.3
96-18-4	1,2,3-Trichloropropane	ND		48	14
95-63-6	1,2,4-Trimethylbenzene	ND	ln	48	16
96-12-8	1,2-Dibromo-3-Chloropropane	83	JQ	300	48
106-93-4	1,2-Dibromoethane	ND		24	4.6
95-50-1	1,2-Dichlorobenzene	23	JQ	48	10
107-06-2	1,2-Dichloroethane	ND		24	6.6
78-87-5	1,2-Dichloropropane	ND	ln	24	7.9
108-67-8	1,3,5-Trimethylbenzene	ND		48	9.1
541-73-1	1,3-Dichlorobenzene	ND		72	16
142-28-9	1,3-Dichloropropane	ND		72	17
106-46-7	1,4-Dichlorobenzene	ND		72	13
594-20-7	2,2-Dichloropropane	ND		48	14
95-49-8	2-Chlorotoluene	ND		48	11
106-43-4	4-Chlorotoluene	ND		48	12
99-87-6	4-Isopropyltoluene	13	JQ	48	12
71-43-2	Benzene	ND	*	36	9.1
108-86-1	Bromobenzene	ND		120	20
74-97-5	Bromochloromethane	ND	*	48	7.4
75-27-4	Bromodichloromethane	ND		72	16
75-25-2	Bromoform	ND		240	31
74-83-9	Bromomethane	ND	*	240	16
56-23-5	Carbon tetrachloride	ND		24	4.6
108-90-7	Chlorobenzene	ND		48	12
75-00-3	Chloroethane	ND		480	65
67-66-3	Chloroform	ND		48	5.0
74-87-3	Chloromethane	ND		120	12
156-59-2	cis-1,2-Dichloroethene	ND		72	15
10061-01-5	cis-1,3-Dichloropropene	ND		24	4.8
124-48-1	Dibromochloromethane	ND		48	14

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FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle

Job No.: 580-82667-1

SDG No.: \_\_\_\_\_

Client Sample ID: 18111127

Lab Sample ID: 580-82667-3

Matrix: Solid

Lab File ID: 122418008.D

Analysis Method: 8260C

Date Collected: 12/11/2018 08:40

Sample wt/vol: 11.63(g)

Date Analyzed: 12/24/2018 13:13

Soil Aliquot Vol: 1.075 (mL)

Dilution Factor: 1

Soil Extract Vol.: 10(mL)

GC Column: DB-VRX ID: 0.25(mm)

% Moisture: 15.4

Level: (low/med) Medium

Analysis Batch No.: 291982

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
74-95-3	Dibromomethane	ND		72	8.9
75-71-8	Dichlorodifluoromethane	ND		240	55
100-41-4	Ethylbenzene	30	JQ	48	11
87-68-3	Hexachlorobutadiene	58	JQ	180	40
98-82-8	Isopropylbenzene	ND		48	10
1634-04-4	Methyl tert-butyl ether	ND		48	7.2
75-09-2	Methylene Chloride	ND		300	77
179601-23-1	m-Xylene & p-Xylene	97	JQ	240	18
104-51-8	n-Butylbenzene	ND		180	30
103-65-1	N-Propylbenzene	ND		48	8.3
95-47-6	o-Xylene	34	JQ	72	16
135-98-8	sec-Butylbenzene	ND		48	10
100-42-5	Styrene	ND		48	7.3
98-06-6	t-Butylbenzene	ND		48	9.2
127-18-4	Tetrachloroethene	7.0	JQ	48	6.3
108-88-3	Toluene	29	JQ	180	16
156-60-5	trans-1,2-Dichloroethene	ND		72	17
10061-02-6	trans-1,3-Dichloropropene	ND		48	8.4
79-01-6	Trichloroethene	ND		72	26
75-69-4	Trichlorofluoromethane	ND		240	14
75-01-4	Vinyl chloride	ND		180	31

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	99		80-121
460-00-4	4-Bromofluorobenzene (Surr)	99		80-120
1868-53-7	Dibromofluoromethane (Surr)	101		80-120
2037-26-5	Toluene-d8 (Surr)	96		80-120
98-08-8	Trifluorotoluene (Surr)	101		80-120

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FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82667-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111127 RA Lab Sample ID: 580-82667-3 RA  
 Matrix: Solid Lab File ID: A0719014.D  
 Analysis Method: 8260C Date Collected: 12/11/2018 08:40  
 Sample wt/vol: 11.63(g) Date Analyzed: 01/07/2019 21:56  
 Soil Aliquot Vol: 1.073 (mL) Dilution Factor: 1  
 Soil Extract Vol.: 10(mL) GC Column: DB-VRX ID: 0.25(mm)  
 % Moisture: 15.4 Level: (low/med) Medium  
 Analysis Batch No.: 292689 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
87-61-6	1,2,3-Trichlorobenzene	ND	H	180	39
120-82-1	1,2,4-Trichlorobenzene	ND	H	72	18
91-20-3	Naphthalene	ND	H	120	34

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	105		80-121
460-00-4	4-Bromofluorobenzene (Surr)	97		80-120
1868-53-7	Dibromofluoromethane (Surr)	101		80-120
2037-26-5	Toluene-d8 (Surr)	100		80-120
98-08-8	Trifluorotoluene (Surr)	94		80-120

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82667-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111128 Lab Sample ID: 580-82667-4  
 Matrix: Solid Lab File ID: L2618008.D  
 Analysis Method: 8260C Date Collected: 12/12/2018 10:00  
 Sample wt/vol: 12.14(g) Date Analyzed: 12/26/2018 16:03  
 Soil Aliquot Vol: 1.075 (mL) Dilution Factor: 1  
 Soil Extract Vol.: 10(mL) GC Column: DB-VRX ID: 0.25(mm)  
 % Moisture: 8.3 Level: (low/med) Medium  
 Analysis Batch No.: 292066 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
630-20-6	1,1,1,2-Tetrachloroethane	ND		40	10
71-55-6	1,1,1-Trichloroethane	ND		40	9.5
79-34-5	1,1,2,2-Tetrachloroethane	ND		20	7.5
79-00-5	1,1,2-Trichloroethane	ND		20	7.3
75-34-3	1,1-Dichloroethane	ND		40	4.2
75-35-4	1,1-Dichloroethene	ND		40	12
563-58-6	1,1-Dichloropropene	ND		40	5.2
87-61-6	1,2,3-Trichlorobenzene	ND		150	32
96-18-4	1,2,3-Trichloropropane	ND		40	11
120-82-1	1,2,4-Trichlorobenzene	34	JQ	59	15
95-63-6	1,2,4-Trimethylbenzene	ND		40	13
96-12-8	1,2-Dibromo-3-Chloropropane	ND		250	39
106-93-4	1,2-Dibromoethane	ND		20	3.8
95-50-1	1,2-Dichlorobenzene	ND		40	8.6
107-06-2	1,2-Dichloroethane	ND		20	5.4
78-87-5	1,2-Dichloropropane	ND		20	6.5
108-67-8	1,3,5-Trimethylbenzene	ND		40	7.5
541-73-1	1,3-Dichlorobenzene	ND		59	13
142-28-9	1,3-Dichloropropane	ND		59	14
106-46-7	1,4-Dichlorobenzene	ND		59	11
594-20-7	2,2-Dichloropropane	ND		40	12
95-49-8	2-Chlorotoluene	ND		40	8.7
106-43-4	4-Chlorotoluene	ND		40	9.7
99-87-6	4-Isopropyltoluene	ND		40	10
71-43-2	Benzene	ND		30	7.5
108-86-1	Bromobenzene	ND		99	17
74-97-5	Bromochloromethane	ND		40	6.1
75-27-4	Bromodichloromethane	ND		59	13
75-25-2	Bromoform	ND		200	26
74-83-9	Bromomethane	ND		200	13
56-23-5	Carbon tetrachloride	ND		20	3.8
108-90-7	Chlorobenzene	ND		40	9.7
75-00-3	Chloroethane	ND		400	54
67-66-3	Chloroform	ND		40	4.2
74-87-3	Chloromethane	ND		99	10
156-59-2	cis-1,2-Dichloroethene	ND		59	12

*John H. H. H.*

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82667-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111128 Lab Sample ID: 580-82667-4  
 Matrix: Solid Lab File ID: L2618008.D  
 Analysis Method: 8260C Date Collected: 12/12/2018 10:00  
 Sample wt/vol: 12.14(g) Date Analyzed: 12/26/2018 16:03  
 Soil Aliquot Vol: 1.075 (mL) Dilution Factor: 1  
 Soil Extract Vol.: 10(mL) GC Column: DB-VRX ID: 0.25(mm)  
 % Moisture: 8.3 Level: (low/med) Medium  
 Analysis Batch No.: 292066 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
10061-01-5	cis-1,3-Dichloropropene	ND		20	4.0
124-48-1	Dibromochloromethane	ND		40	11
74-95-3	Dibromomethane	ND		59	7.3
75-71-8	Dichlorodifluoromethane	ND		200	45
100-41-4	Ethylbenzene	13	J Q	40	9.0
87-68-3	Hexachlorobutadiene	59	J Q	150	33
98-82-8	Isopropylbenzene	ND		40	8.5
1634-04-4	Methyl tert-butyl ether	ND		40	5.9
75-09-2	Methylene Chloride	ND		250	64
179601-23-1	m-Xylene & p-Xylene	42	J Q	200	15
91-20-3	Naphthalene	29	J Q	99	28
104-51-8	n-Butylbenzene	ND		150	25
103-65-1	N-Propylbenzene	ND		40	6.8
95-47-6	o-Xylene	15	J Q	59	13
135-98-8	sec-Butylbenzene	ND		40	8.5
100-42-5	Styrene	ND		40	6.0
98-06-6	t-Butylbenzene	ND		40	7.6
127-18-4	Tetrachloroethene	ND		40	5.2
108-88-3	Toluene	16	J Q	150	13
156-60-5	trans-1,2-Dichloroethene	ND		59	14
10061-02-6	trans-1,3-Dichloropropene	ND		40	6.9
79-01-6	Trichloroethene	ND		59	22
75-69-4	Trichlorofluoromethane	ND		200	11

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	101		80-121
460-00-4	4-Bromofluorobenzene (Surr)	99		80-120
1868-53-7	Dibromofluoromethane (Surr)	97		80-120
2037-26-5	Toluene-d8 (Surr)	102		80-120
98-08-8	Trifluorotoluene (Surr)	101		80-120

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82667-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111128 RA Lab Sample ID: 580-82667-4 RA  
 Matrix: Solid Lab File ID: 010219010.D  
 Analysis Method: 8260C Date Collected: 12/12/2018 10:00  
 Sample wt/vol: 12.14(g) Date Analyzed: 01/02/2019 13:54  
 Soil Aliquot Vol: 1.075 (mL) Dilution Factor: 1  
 Soil Extract Vol.: 10(mL) GC Column: DB-VRX ID: 0.25 (mm)  
 % Moisture: 8.3 Level: (low/med) Medium  
 Analysis Batch No.: 292405 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-01-4	Vinyl chloride	ND	1	150	26

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	89		80-121
460-00-4	4-Bromofluorobenzene (Surr)	99		80-120
1868-53-7	Dibromofluoromethane (Surr)	90		80-120
2037-26-5	Toluene-d8 (Surr)	104		80-120
98-08-8	Trifluorotoluene (Surr)	95		80-120

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FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle

Job No.: 580-82667-1

SDG No.: \_\_\_\_\_

Client Sample ID: 18111129

Lab Sample ID: 580-82667-5

Matrix: Solid

Lab File ID: L2618009.D

Analysis Method: 8260C

Date Collected: 12/12/2018 10:10

Sample wt/vol: 12.48(g)

Date Analyzed: 12/26/2018 16:29

Soil Aliquot Vol: 1.075 (mL)

Dilution Factor: 1

Soil Extract Vol.: 10(mL)

GC Column: DB-VRX ID: 0.25 (mm)

% Moisture: 9.4

Level: (low/med) Medium

Analysis Batch No.: 292066

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
630-20-6	1,1,1,2-Tetrachloroethane	ND		40	10
71-55-6	1,1,1-Trichloroethane	ND		40	9.5
79-34-5	1,1,2,2-Tetrachloroethane	ND		20	7.5
79-00-5	1,1,2-Trichloroethane	ND		20	7.3
75-34-3	1,1-Dichloroethane	ND		40	4.2
75-35-4	1,1-Dichloroethene	ND		40	12
563-58-6	1,1-Dichloropropene	ND		40	5.2
87-61-6	1,2,3-Trichlorobenzene	ND		150	32
96-18-4	1,2,3-Trichloropropane	ND		40	11
120-82-1	1,2,4-Trichlorobenzene	ND		59	15
95-63-6	1,2,4-Trimethylbenzene	ND		40	13
96-12-8	1,2-Dibromo-3-Chloropropane	ND		250	39
106-93-4	1,2-Dibromoethane	ND		20	3.8
95-50-1	1,2-Dichlorobenzene	ND		40	8.6
107-06-2	1,2-Dichloroethane	ND		20	5.4
78-87-5	1,2-Dichloropropane	ND		20	6.5
108-67-8	1,3,5-Trimethylbenzene	ND		40	7.5
541-73-1	1,3-Dichlorobenzene	ND		59	13
142-28-9	1,3-Dichloropropane	ND		59	14
106-46-7	1,4-Dichlorobenzene	ND		59	11
594-20-7	2,2-Dichloropropane	ND		40	12
95-49-8	2-Chlorotoluene	ND		40	8.7
106-43-4	4-Chlorotoluene	ND		40	9.7
99-87-6	4-Isopropyltoluene	ND		40	10
71-43-2	Benzene	ND		30	7.5
108-86-1	Bromobenzene	ND		99	17
74-97-5	Bromochloromethane	ND		40	6.1
75-27-4	Bromodichloromethane	ND		59	13
75-25-2	Bromoform	ND		200	26
74-83-9	Bromomethane	ND		200	13
56-23-5	Carbon tetrachloride	ND		20	3.8
108-90-7	Chlorobenzene	ND		40	9.7
75-00-3	Chloroethane	ND		40	5.4
67-66-3	Chloroform	ND		40	4.2
74-87-3	Chloromethane	ND		99	10
156-59-2	cis-1,2-Dichloroethene	ND		59	12

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82667-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111129 Lab Sample ID: 580-82667-5  
 Matrix: Solid Lab File ID: L2618009.D  
 Analysis Method: 8260C Date Collected: 12/12/2018 10:10  
 Sample wt/vol: 12.48(g) Date Analyzed: 12/26/2018 16:29  
 Soil Aliquot Vol: 1.075 (mL) Dilution Factor: 1  
 Soil Extract Vol.: 10(mL) GC Column: DB-VRX ID: 0.25(mm)  
 % Moisture: 9.4 Level: (low/med) Medium  
 Analysis Batch No.: 292066 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
10061-01-5	cis-1,3-Dichloropropene	ND		20	4.0
124-48-1	Dibromochloromethane	ND		40	11
74-95-3	Dibromomethane	ND		59	7.3
75-71-8	Dichlorodifluoromethane	ND		200	45
100-41-4	Ethylbenzene	ND		40	9.0
87-68-3	Hexachlorobutadiene	ND		150	33
98-82-8	Isopropylbenzene	ND		40	8.5
1634-04-4	Methyl tert-butyl ether	ND		40	5.9
75-09-2	Methylene Chloride	ND		250	64
179601-23-1	m-Xylene & p-Xylene	ND		200	15
91-20-3	Naphthalene	ND		99	28
104-51-8	n-Butylbenzene	ND		150	25
103-65-1	N-Propylbenzene	ND		40	6.8
95-47-6	o-Xylene	ND		59	13
135-98-8	sec-Butylbenzene	ND		40	8.5
100-42-5	Styrene	ND		40	6.0
98-06-6	t-Butylbenzene	ND		40	7.6
127-18-4	Tetrachloroethene	ND		40	5.2
108-88-3	Toluene	ND		150	13
156-60-5	trans-1,2-Dichloroethene	ND		59	14
10061-02-6	trans-1,3-Dichloropropene	ND		40	6.9
79-01-6	Trichloroethene	ND		59	22
75-69-4	Trichlorofluoromethane	ND		200	11

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	100		80-121
460-00-4	4-Bromofluorobenzene (Surr)	103		80-120
1868-53-7	Dibromofluoromethane (Surr)	97		80-120
2037-26-5	Toluene-d8 (Surr)	102		80-120
98-08-8	Trifluorotoluene (Surr)	98		80-120

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82667-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111129 RA Lab Sample ID: 580-82667-5 RA  
 Matrix: Solid Lab File ID: 010219011.D  
 Analysis Method: 8260C Date Collected: 12/12/2018 10:10  
 Sample wt/vol: 12.48(g) Date Analyzed: 01/02/2019 14:20  
 Soil Aliquot Vol: 1.075 (mL) Dilution Factor: 1  
 Soil Extract Vol.: 10(mL) GC Column: DB-VRX ID: 0.25(mm)  
 % Moisture: 9.4 Level: (low/med) Medium  
 Analysis Batch No.: 292405 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-01-4	Vinyl chloride	ND	1	150	26

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	93		80-121
460-00-4	4-Bromofluorobenzene (Surr)	99		80-120
1868-53-7	Dibromofluoromethane (Surr)	90		80-120
2037-26-5	Toluene-d8 (Surr)	103		80-120
98-08-8	Trifluorotoluene (Surr)	92		80-120

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FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle

Job No.: 580-82667-1

SDG No.: \_\_\_\_\_

Client Sample ID: 18111130

Lab Sample ID: 580-82667-6

Matrix: Solid

Lab File ID: L2618010.D

Analysis Method: 8260C

Date Collected: 12/12/2018 12:00

Sample wt/vol: 10.88(g)

Date Analyzed: 12/26/2018 16:55

Soil Aliquot Vol: 1.075 (mL)

Dilution Factor: 1

Soil Extract Vol.: 10(mL)

GC Column: DB-VRX ID: 0.25 (mm)

% Moisture: 15.2

Level: (low/med) Medium

Analysis Batch No.: 292066

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
630-20-6	1,1,1,2-Tetrachloroethane	ND		51	13
71-55-6	1,1,1-Trichloroethane	ND		51	12
79-34-5	1,1,2,2-Tetrachloroethane	ND		25	9.6
79-00-5	1,1,2-Trichloroethane	ND		25	9.3
75-34-3	1,1-Dichloroethane	ND		51	5.3
75-35-4	1,1-Dichloroethene	ND		51	16
563-58-6	1,1-Dichloropropene	ND		51	6.7
87-61-6	1,2,3-Trichlorobenzene	ND		190	41
96-18-4	1,2,3-Trichloropropane	ND		51	15
120-82-1	1,2,4-Trichlorobenzene	ND		76	19
95-63-6	1,2,4-Trimethylbenzene	ND		51	17
96-12-8	1,2-Dibromo-3-Chloropropane	ND		320	50
106-93-4	1,2-Dibromoethane	ND		25	4.8
95-50-1	1,2-Dichlorobenzene	ND		51	11
107-06-2	1,2-Dichloroethane	ND		25	6.9
78-87-5	1,2-Dichloropropane	ND		25	8.3
108-67-8	1,3,5-Trimethylbenzene	ND		51	9.6
541-73-1	1,3-Dichlorobenzene	ND		76	17
142-28-9	1,3-Dichloropropane	ND		76	17
106-46-7	1,4-Dichlorobenzene	ND		76	14
594-20-7	2,2-Dichloropropane	ND		51	15
95-49-8	2-Chlorotoluene	ND		51	11
106-43-4	4-Chlorotoluene	ND		51	12
99-87-6	4-Isopropyltoluene	ND		51	13
71-43-2	Benzene	ND		38	9.6
108-86-1	Bromobenzene	ND		130	22
74-97-5	Bromochloromethane	ND		51	7.8
75-27-4	Bromodichloromethane	ND		76	17
75-25-2	Bromoform	ND		250	33
74-83-9	Bromomethane	ND		250	17
56-23-5	Carbon tetrachloride	ND		25	4.8
108-90-7	Chlorobenzene	ND		51	12
75-00-3	Chloroethane	ND		51	6.9
67-66-3	Chloroform	ND		51	5.3
74-87-3	Chloromethane	ND		130	13
156-59-2	cis-1,2-Dichloroethene	ND		76	16

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle

Job No.: 580-82667-1

SDG No.: \_\_\_\_\_

Client Sample ID: 18111130

Lab Sample ID: 580-82667-6

Matrix: Solid

Lab File ID: L2618010.D

Analysis Method: 8260C

Date Collected: 12/12/2018 12:00

Sample wt/vol: 10.88(g)

Date Analyzed: 12/26/2018 16:55

Soil Aliquot Vol: 1.075 (mL)

Dilution Factor: 1

Soil Extract Vol.: 10(mL)

GC Column: DB-VRX ID: 0.25(mm)

% Moisture: 15.2

Level: (low/med) Medium

Analysis Batch No.: 292066

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
10061-01-5	cis-1,3-Dichloropropene	ND		25	5.1
124-48-1	Dibromochloromethane	ND		51	14
74-95-3	Dibromomethane	ND		76	9.3
75-71-8	Dichlorodifluoromethane	ND		250	58
100-41-4	Ethylbenzene	ND		51	11
87-68-3	Hexachlorobutadiene	ND		190	42
98-82-8	Isopropylbenzene	ND		51	11
1634-04-4	Methyl tert-butyl ether	ND		51	7.6
75-09-2	Methylene Chloride	ND		320	82
179601-23-1	m-Xylene & p-Xylene	ND		250	19
91-20-3	Naphthalene	ND		130	36
104-51-8	n-Butylbenzene	ND		190	32
103-65-1	N-Propylbenzene	ND		51	8.7
95-47-6	o-Xylene	ND		76	17
135-98-8	sec-Butylbenzene	ND		51	11
100-42-5	Styrene	ND		51	7.7
98-06-6	t-Butylbenzene	ND		51	9.7
127-18-4	Tetrachloroethene	ND		51	6.7
108-88-3	Toluene	ND		190	17
156-60-5	trans-1,2-Dichloroethene	ND		76	18
10061-02-6	trans-1,3-Dichloropropene	ND		51	8.8
79-01-6	Trichloroethene	ND		76	26
75-69-4	Trichlorofluoromethane	99	JQ	250	14

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	99		80-121
460-00-4	4-Bromofluorobenzene (Surr)	100		80-120
1868-53-7	Dibromofluoromethane (Surr)	99		80-120
2037-26-5	Toluene-d8 (Surr)	100		80-120
98-08-8	Trifluorotoluene (Surr)	97		80-120

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82667-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111130 RA Lab Sample ID: 580-82667-6 RA  
 Matrix: Solid Lab File ID: 010219012.D  
 Analysis Method: 8260C Date Collected: 12/12/2018 12:00  
 Sample wt/vol: 10.88(g) Date Analyzed: 01/02/2019 14:45  
 Soil Aliquot Vol: 1.075 (mL) Dilution Factor: 1  
 Soil Extract Vol.: 10 (mL) GC Column: DB-VRX ID: 0.25 (mm)  
 % Moisture: 15.2 Level: (low/med) Medium  
 Analysis Batch No.: 292405 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-01-4	Vinyl chloride	ND	H	190	33

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	95		80-121
460-00-4	4-Bromofluorobenzene (Surr)	99		80-120
1868-53-7	Dibromofluoromethane (Surr)	90		80-120
2037-26-5	Toluene-d8 (Surr)	105		80-120
98-08-8	Trifluorotoluene (Surr)	93		80-120

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle

Job No.: 580-82667-1

SDG No.: \_\_\_\_\_

Client Sample ID: 18111131

Lab Sample ID: 580-82667-7

Matrix: Solid

Lab File ID: L2618011.D

Analysis Method: 8260C

Date Collected: 12/12/2018 12:10

Sample wt/vol: 9.68(g)

Date Analyzed: 12/26/2018 17:21

Soil Aliquot Vol: 1.075 (mL)

Dilution Factor: 1

Soil Extract Vol.: 10(mL)

GC Column: DB-VRX ID: 0.25 (mm)

% Moisture: 8.5

Level: (low/med) Medium

Analysis Batch No.: 292066

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
630-20-6	1,1,1,2-Tetrachloroethane	ND		49	13
71-55-6	1,1,1-Trichloroethane	ND		49	12
79-34-5	1,1,2,2-Tetrachloroethane	ND		24	9.3
79-00-5	1,1,2-Trichloroethane	ND		24	9.0
75-34-3	1,1-Dichloroethane	ND		49	5.1
75-35-4	1,1-Dichloroethene	ND		49	15
563-58-6	1,1-Dichloropropene	ND		49	6.5
87-61-6	1,2,3-Trichlorobenzene	ND		180	39
96-18-4	1,2,3-Trichloropropane	ND		49	14
120-82-1	1,2,4-Trichlorobenzene	ND		73	19
95-63-6	1,2,4-Trimethylbenzene	ND		49	17
96-12-8	1,2-Dibromo-3-Chloropropane	ND		310	49
106-93-4	1,2-Dibromoethane	ND		24	4.6
95-50-1	1,2-Dichlorobenzene	ND		49	11
107-06-2	1,2-Dichloroethane	ND		24	6.7
78-87-5	1,2-Dichloropropane	ND		24	8.1
108-67-8	1,3,5-Trimethylbenzene	ND		49	9.3
541-73-1	1,3-Dichlorobenzene	ND		73	16
142-28-9	1,3-Dichloropropane	ND		73	17
106-46-7	1,4-Dichlorobenzene	ND		73	13
594-20-7	2,2-Dichloropropane	ND		49	15
95-49-8	2-Chlorotoluene	ND		49	11
106-43-4	4-Chlorotoluene	ND		49	12
99-87-6	4-Isopropyltoluene	ND		49	12
71-43-2	Benzene	ND		37	9.3
108-86-1	Bromobenzene	ND		120	21
74-97-5	Bromochloromethane	ND		49	7.6
75-27-4	Bromodichloromethane	ND		73	16
75-25-2	Bromoform	ND		240	32
74-83-9	Bromomethane	ND		240	16
56-23-5	Carbon tetrachloride	ND		24	4.6
108-90-7	Chlorobenzene	ND		49	12
75-00-3	Chloroethane	ND		49	6.6
67-66-3	Chloroform	ND		49	5.1
74-87-3	Chloromethane	ND		120	12
156-59-2	cis-1,2-Dichloroethene	ND		73	15



FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82667-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111131 Lab Sample ID: 580-82667-7  
 Matrix: Solid Lab File ID: L2618011.D  
 Analysis Method: 8260C Date Collected: 12/12/2018 12:10  
 Sample wt/vol: 9.68(g) Date Analyzed: 12/26/2018 17:21  
 Soil Aliquot Vol: 1.075 (mL) Dilution Factor: 1  
 Soil Extract Vol.: 10(mL) GC Column: DB-VRX ID: 0.25(mm)  
 % Moisture: 8.5 Level: (low/med) Medium  
 Analysis Batch No.: 292066 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
10061-01-5	cis-1,3-Dichloropropene	ND		24	4.9
124-48-1	Dibromochloromethane	ND		49	14
74-95-3	Dibromomethane	ND		73	9.0
75-71-8	Dichlorodifluoromethane	ND		240	56
100-41-4	Ethylbenzene	ND		49	11
87-68-3	Hexachlorobutadiene	ND		180	41
98-82-8	Isopropylbenzene	ND		49	11
1634-04-4	Methyl tert-butyl ether	ND		49	7.3
75-09-2	Methylene Chloride	ND		310	79
179601-23-1	m-Xylene & p-Xylene	ND		240	18
91-20-3	Naphthalene	ND		120	35
104-51-8	n-Butylbenzene	ND		180	31
103-65-1	N-Propylbenzene	ND		49	8.4
95-47-6	o-Xylene	ND		73	16
135-98-8	sec-Butylbenzene	ND		49	11
100-42-5	Styrene	ND		49	7.5
98-06-6	t-Butylbenzene	ND		49	9.4
127-18-4	Tetrachloroethene	ND		49	6.5
108-88-3	Toluene	ND		180	17
156-60-5	trans-1,2-Dichloroethene	ND		73	18
10061-02-6	trans-1,3-Dichloropropene	ND		49	8.6
79-01-6	Trichloroethene	ND		73	27
75-69-4	Trichlorofluoromethane	ND		240	14

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	100		80-121
460-00-4	4-Bromofluorobenzene (Surr)	103		80-120
1868-53-7	Dibromofluoromethane (Surr)	99		80-120
2037-26-5	Toluene-d8 (Surr)	104		80-120
98-08-8	Trifluorotoluene (Surr)	96		80-120

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82667-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111131 RA Lab Sample ID: 580-82667-7 RA  
 Matrix: Solid Lab File ID: 010219013.D  
 Analysis Method: 8260C Date Collected: 12/12/2018 12:10  
 Sample wt/vol: 9.68(g) Date Analyzed: 01/02/2019 15:11  
 Soil Aliquot Vol: 1.075 (mL) Dilution Factor: 1  
 Soil Extract Vol.: 10(mL) GC Column: DB-VRX ID: 0.25(mm)  
 % Moisture: 8.5 Level: (low/med) Medium  
 Analysis Batch No.: 292405 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-01-4	Vinyl chloride	<del>ND</del> <i>m/n</i>		180	32 <i>152</i>

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	90		80-121
460-00-4	4-Bromofluorobenzene (Surr)	98		80-120
1868-53-7	Dibromofluoromethane (Surr)	87		80-120
2037-26-5	Toluene-d8 (Surr)	107		80-120
98-08-8	Trifluorotoluene (Surr)	93		80-120

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle

Job No.: 580-82667-1

SDG No.: \_\_\_\_\_

Client Sample ID: 18111132

Lab Sample ID: 580-82667-8

Matrix: Solid

Lab File ID: L2618012.D

Analysis Method: 8260C

Date Collected: 12/12/2018 14:30

Sample wt/vol: 6.96(g)

Date Analyzed: 12/26/2018 17:47

Soil Aliquot Vol: 1.075 (mL)

Dilution Factor: 1

Soil Extract Vol.: 10(mL)

GC Column: DB-VRX ID: 0.25(mm)

% Moisture: 10.1

Level: (low/med) Medium

Analysis Batch No.: 292066

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
630-20-6	1,1,1,2-Tetrachloroethane	ND	F1 F2	68	18
71-55-6	1,1,1-Trichloroethane	ND	F1 F2	68	16
79-34-5	1,1,2,2-Tetrachloroethane	ND	F1 F2	34	13
79-00-5	1,1,2-Trichloroethane	ND	F1 F2	34	13
75-34-3	1,1-Dichloroethane	ND	F1 F2	68	7.2
75-35-4	1,1-Dichloroethene	ND	F1 F2	68	21
563-58-6	1,1-Dichloropropene	ND	F1 F2	68	9.1
87-61-6	1,2,3-Trichlorobenzene	ND	F1 F2	260	55
96-18-4	1,2,3-Trichloropropane	ND	F1 F2	68	20
120-82-1	1,2,4-Trichlorobenzene	ND	F1 F2	100	26
95-63-6	1,2,4-Trimethylbenzene	380	F1 F2	68	23
96-12-8	1,2-Dibromo-3-Chloropropane	ND	F1 F2	430	68
106-93-4	1,2-Dibromoethane	ND	F1 F2	34	6.5
95-50-1	1,2-Dichlorobenzene	ND	F1 F2	68	15
107-06-2	1,2-Dichloroethane	ND	F1 F2	34	9.4
78-87-5	1,2-Dichloropropane	ND	F1 F2	34	11
108-67-8	1,3,5-Trimethylbenzene	120	F1 F2	68	13
541-73-1	1,3-Dichlorobenzene	ND	F1 F2	100	23
142-28-9	1,3-Dichloropropane	ND	F1 F2	100	24
106-46-7	1,4-Dichlorobenzene	ND	F1 F2	100	18
594-20-7	2,2-Dichloropropane	ND	F1 F2	68	21
95-49-8	2-Chlorotoluene	ND	F1 F2	68	15
106-43-4	4-Chlorotoluene	ND	F1 F2	68	17
99-87-6	4-Isopropyltoluene	56	J F1 F2 Q	68	17
71-43-2	Benzene	13	J F1 F2 Q	51	13
108-86-1	Bromobenzene	ND	F1 F2	170	29
74-97-5	Bromochloromethane	ND	F1 F2	68	11
75-27-4	Bromodichloromethane	ND	F1 F2	100	23
75-25-2	Bromoform	ND	F1 F2	340	45
74-83-9	Bromomethane	ND	F1 F2	340	23
56-23-5	Carbon tetrachloride	ND	F1 F2	34	6.5
108-90-7	Chlorobenzene	ND	F1 F2	68	17
75-00-3	Chloroethane	ND	F1 F2	68	9.4
67-66-3	Chloroform	ND	F1 F2	68	7.2
74-87-3	Chloromethane	ND	F2	170	17

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle

Job No.: 580-82667-1

SDG No.: \_\_\_\_\_

Client Sample ID: 18111132

Lab Sample ID: 580-82667-8

Matrix: Solid

Lab File ID: L2618012.D

Analysis Method: 8260C

Date Collected: 12/12/2018 14:30

Sample wt/vol: 6.96(g)

Date Analyzed: 12/26/2018 17:47

Soil Aliquot Vol: 1.075 (mL)

Dilution Factor: 1

Soil Extract Vol.: 10(mL)

GC Column: DB-VRX ID: 0.25(mm)

% Moisture: 10.1

Level: (low/med) Medium

Analysis Batch No.: 292066

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
156-59-2	cis-1,2-Dichloroethene	ND	F1 F2	100	22
10061-01-5	cis-1,3-Dichloropropene	ND	F1 F2	34	6.8
124-48-1	Dibromochloromethane	ND	F1 F2	68	19
74-95-3	Dibromomethane	ND	F1 F2	100	13
75-71-8	Dichlorodifluoromethane	ND	F2	340	79
100-41-4	Ethylbenzene	53	J F1 Q	68	16
87-68-3	Hexachlorobutadiene	ND	F1 F2	260	57
98-82-8	Isopropylbenzene	24	J F1 Q	68	15
1634-04-4	Methyl tert-butyl ether	ND	F1 F2	68	10
75-09-2	Methylene Chloride	ND	F1 F2	430	110
179601-23-1	m-Xylene & p-Xylene	180	J F1 Q	340	25
91-20-3	Naphthalene	ND	F1 F2	170	48
104-51-8	n-Butylbenzene	130	J F1 Q	260	43
103-65-1	N-Propylbenzene	55	J F1 Q	68	12
95-47-6	o-Xylene	91	J F1 Q	100	23
135-98-8	sec-Butylbenzene	66	J F1 Q	68	15
100-42-5	Styrene	18	J F1 Q	68	10
98-06-6	t-Butylbenzene	ND	F1 F2	68	13
127-18-4	Tetrachloroethene	ND	F1 F2	68	9.1
108-88-3	Toluene	67	J F1 Q	260	23
156-60-5	trans-1,2-Dichloroethene	ND	F1 F2	100	25
10061-02-6	trans-1,3-Dichloropropene	ND	F1 F2	68	12
79-01-6	Trichloroethene	ND	F1 F2	100	38
75-69-4	Trichlorofluoromethane	ND	F1 F2	340	20

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82667-1  
SDG No.: \_\_\_\_\_  
Client Sample ID: 18111132 Lab Sample ID: 580-82667-8  
Matrix: Solid Lab File ID: L2618012.D  
Analysis Method: 8260C Date Collected: 12/12/2018 14:30  
Sample wt/vol: 6.96(g) Date Analyzed: 12/26/2018 17:47  
Soil Aliquot Vol: 1.075 (mL) Dilution Factor: 1  
Soil Extract Vol.: 10(mL) GC Column: DB-VRX ID: 0.25 (mm)  
% Moisture: 10.1 Level: (low/med) Medium  
Analysis Batch No.: 292066 Units: ug/Kg

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	103		80-121
460-00-4	4-Bromofluorobenzene (Surr)	99		80-120
1868-53-7	Dibromofluoromethane (Surr)	102		80-120
2037-26-5	Toluene-d8 (Surr)	98		80-120
98-08-8	Trifluorotoluene (Surr)	97		80-120

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82667-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111132 RA Lab Sample ID: 580-82667-8 RA  
 Matrix: Solid Lab File ID: 010219014.D  
 Analysis Method: 8260C Date Collected: 12/12/2018 14:30  
 Sample wt/vol: 6.96(g) Date Analyzed: 01/02/2019 15:36  
 Soil Aliquot Vol: 1.075 (mL) Dilution Factor: 1  
 Soil Extract Vol.: 10(mL) GC Column: DB-VRX ID: 0.25(mm)  
 % Moisture: 10.1 Level: (low/med) Medium  
 Analysis Batch No.: 292405 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-01-4	Vinyl chloride	ND		260	45

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	88		80-121
460-00-4	4-Bromofluorobenzene (Surr)	99		80-120
1868-53-7	Dibromofluoromethane (Surr)	89		80-120
2037-26-5	Toluene-d8 (Surr)	106		80-120
98-08-8	Trifluorotoluene (Surr)	93		80-120

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle

Job No.: 580-82667-1

SDG No.: \_\_\_\_\_

Client Sample ID: 18111133

Lab Sample ID: 580-82667-9

Matrix: Solid

Lab File ID: L2618013.D

Analysis Method: 8260C

Date Collected: 12/12/2018 15:00

Sample wt/vol: 9.36(g)

Date Analyzed: 12/26/2018 18:13

Soil Aliquot Vol: 1.075 (mL)

Dilution Factor: 1

Soil Extract Vol.: 10 (mL)

GC Column: DB-VRX ID: 0.25 (mm)

% Moisture: 17.7

Level: (low/med) Medium

Analysis Batch No.: 292066

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
630-20-6	1,1,1,2-Tetrachloroethane	ND		61	16
71-55-6	1,1,1-Trichloroethane	ND		61	15
79-34-5	1,1,2,2-Tetrachloroethane	ND		30	11
79-00-5	1,1,2-Trichloroethane	ND		30	11
75-34-3	1,1-Dichloroethane	ND		61	6.4
75-35-4	1,1-Dichloroethene	ND		61	19
563-58-6	1,1-Dichloropropene	ND		61	8.0
87-61-6	1,2,3-Trichlorobenzene	ND		230	49
96-18-4	1,2,3-Trichloropropane	ND		61	17
120-82-1	1,2,4-Trichlorobenzene	ND		91	23
95-63-6	1,2,4-Trimethylbenzene	ND		61	20
96-12-8	1,2-Dibromo-3-Chloropropane	ND		380	60
106-93-4	1,2-Dibromoethane	ND		30	5.7
95-50-1	1,2-Dichlorobenzene	ND		61	13
107-06-2	1,2-Dichloroethane	ND		30	8.3
78-87-5	1,2-Dichloropropane	ND		30	10
108-67-8	1,3,5-Trimethylbenzene	ND		61	11
541-73-1	1,3-Dichlorobenzene	ND		91	20
142-28-9	1,3-Dichloropropane	ND		91	21
106-46-7	1,4-Dichlorobenzene	ND		91	16
594-20-7	2,2-Dichloropropane	ND		61	18
95-49-8	2-Chlorotoluene	ND		61	13
106-43-4	4-Chlorotoluene	ND		61	15
99-87-6	4-Isopropyltoluene	ND		61	15
71-43-2	Benzene	ND		45	11
108-86-1	Bromobenzene	ND		150	26
74-97-5	Bromochloromethane	ND		61	9.4
75-27-4	Bromodichloromethane	ND		91	20
75-25-2	Bromoform	ND		300	40
74-83-9	Bromomethane	ND		300	20
56-23-5	Carbon tetrachloride	ND		30	5.7
108-90-7	Chlorobenzene	ND		61	15
75-00-3	Chloroethane	ND		61	82
67-66-3	Chloroform	ND		61	6.4
74-87-3	Chloromethane	ND		150	15
156-59-2	cis-1,2-Dichloroethene	ND		91	19



FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82667-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111133 Lab Sample ID: 580-82667-9  
 Matrix: Solid Lab File ID: L2618013.D  
 Analysis Method: 8260C Date Collected: 12/12/2018 15:00  
 Sample wt/vol: 9.36(g) Date Analyzed: 12/26/2018 18:13  
 Soil Aliquot Vol: 1.075 (mL) Dilution Factor: 1  
 Soil Extract Vol.: 10(mL) GC Column: DB-VRX ID: 0.25(mm)  
 % Moisture: 17.7 Level: (low/med) Medium  
 Analysis Batch No.: 292066 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
10061-01-5	cis-1,3-Dichloropropene	ND		30	6.1
124-48-1	Dibromochloromethane	ND		61	17
74-95-3	Dibromomethane	ND		91	11
75-71-8	Dichlorodifluoromethane	ND		300	69
100-41-4	Ethylbenzene	ND		61	14
87-68-3	Hexachlorobutadiene	ND		230	51
98-82-8	Isopropylbenzene	ND		61	13
1634-04-4	Methyl tert-butyl ether	ND		61	9.1
75-09-2	Methylene Chloride	ND		380	98
179601-23-1	m-Xylene & p-Xylene	ND		300	23
91-20-3	Naphthalene	ND		150	43
104-51-8	n-Butylbenzene	ND		230	38
103-65-1	N-Propylbenzene	ND		61	10
95-47-6	o-Xylene	ND		91	20
135-98-8	sec-Butylbenzene	ND		61	13
100-42-5	Styrene	ND		61	9.2
98-06-6	t-Butylbenzene	ND		61	12
127-18-4	Tetrachloroethene	ND		61	8.0
108-88-3	Toluene	ND		230	20
156-60-5	trans-1,2-Dichloroethene	ND		91	22
10061-02-6	trans-1,3-Dichloropropene	ND		61	11
79-01-6	Trichloroethene	ND		91	33
75-69-4	Trichlorofluoromethane	ND		300	17

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	99		80-121
460-00-4	4-Bromofluorobenzene (Surr)	100		80-120
1868-53-7	Dibromofluoromethane (Surr)	98		80-120
2037-26-5	Toluene-d8 (Surr)	103		80-120
98-08-8	Trifluorotoluene (Surr)	100		80-120

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FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82667-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111133 RA Lab Sample ID: 580-82667-9 RA  
 Matrix: Solid Lab File ID: 010219015.D  
 Analysis Method: 8260C Date Collected: 12/12/2018 15:00  
 Sample wt/vol: 9.36(g) Date Analyzed: 01/02/2019 16:01  
 Soil Aliquot Vol: 1.075 (mL) Dilution Factor: 1  
 Soil Extract Vol.: 10(mL) GC Column: DB-VRX ID: 0.25(mm)  
 % Moisture: 17.7 Level: (low/med) Medium  
 Analysis Batch No.: 292405 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-01-4	Vinyl chloride	ND		230	40

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	89		80-121
460-00-4	4-Bromofluorobenzene (Surr)	100		80-120
1868-53-7	Dibromofluoromethane (Surr)	89		80-120
2037-26-5	Toluene-d8 (Surr)	108		80-120
98-08-8	Trifluorotoluene (Surr)	91		80-120

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FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle

Job No.: 580-82667-1

SDG No.: \_\_\_\_\_

Client Sample ID: 18111134

Lab Sample ID: 580-82667-10

Matrix: Solid

Lab File ID: L2618014.D

Analysis Method: 8260C

Date Collected: 12/12/2018 15:00

Sample wt/vol: 8.56(g)

Date Analyzed: 12/26/2018 18:39

Soil Aliquot Vol: 1.075 (mL)

Dilution Factor: 1

Soil Extract Vol.: 10(mL)

GC Column: DB-VRX ID: 0.25 (mm)

% Moisture: 17.2

Level: (low/med) Medium

Analysis Batch No.: 292066

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
630-20-6	1,1,1,2-Tetrachloroethane	ND		65	17
71-55-6	1,1,1-Trichloroethane	ND		65	16
79-34-5	1,1,2,2-Tetrachloroethane	ND		32	12
79-00-5	1,1,2-Trichloroethane	ND		32	12
75-34-3	1,1-Dichloroethane	ND		65	6.8
75-35-4	1,1-Dichloroethene	ND		65	20
563-58-6	1,1-Dichloropropene	ND		65	8.6
87-61-6	1,2,3-Trichlorobenzene	ND		240	52
96-18-4	1,2,3-Trichloropropane	ND		65	19
120-82-1	1,2,4-Trichlorobenzene	ND		97	25
95-63-6	1,2,4-Trimethylbenzene	ND		65	22
96-12-8	1,2-Dibromo-3-Chloropropane	ND		400	64
106-93-4	1,2-Dibromoethane	ND		32	6.1
95-50-1	1,2-Dichlorobenzene	ND		65	14
107-06-2	1,2-Dichloroethane	ND		32	8.9
78-87-5	1,2-Dichloropropane	ND		32	11
108-67-8	1,3,5-Trimethylbenzene	ND		65	12
541-73-1	1,3-Dichlorobenzene	ND		97	22
142-28-9	1,3-Dichloropropane	ND		97	22
106-46-7	1,4-Dichlorobenzene	ND		97	17
594-20-7	2,2-Dichloropropane	ND		65	20
95-49-8	2-Chlorotoluene	ND		65	14
106-43-4	4-Chlorotoluene	ND		65	16
99-87-6	4-Isopropyltoluene	ND		65	17
71-43-2	Benzene	ND		49	12
108-86-1	Bromobenzene	ND		160	28
74-97-5	Bromochloromethane	ND		65	10
75-27-4	Bromodichloromethane	ND		97	22
75-25-2	Bromoform	ND		320	43
74-83-9	Bromomethane	ND		320	22
56-23-5	Carbon tetrachloride	ND		32	6.1
108-90-7	Chlorobenzene	ND		65	16
75-00-3	Chloroethane	ND		650	88
67-66-3	Chloroform	ND		65	6.8
74-87-3	Chloromethane	ND		160	16
156-59-2	cis-1,2-Dichloroethene	ND		97	20

FORM I 8260C

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FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82667-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111134 Lab Sample ID: 580-82667-10  
 Matrix: Solid Lab File ID: L2618014.D  
 Analysis Method: 8260C Date Collected: 12/12/2018 15:00  
 Sample wt/vol: 8.56(g) Date Analyzed: 12/26/2018 18:39  
 Soil Aliquot Vol: 1.075 (mL) Dilution Factor: 1  
 Soil Extract Vol.: 10(mL) GC Column: DB-VRX ID: 0.25(mm)  
 % Moisture: 17.2 Level: (low/med) Medium  
 Analysis Batch No.: 292066 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
10061-01-5	cis-1,3-Dichloropropene	ND		32	6.5
124-48-1	Dibromochloromethane	ND		65	18
74-95-3	Dibromomethane	ND		97	12
75-71-8	Dichlorodifluoromethane	ND		320	74
100-41-4	Ethylbenzene	ND		65	15
87-68-3	Hexachlorobutadiene	ND		240	54
98-82-8	Isopropylbenzene	ND		65	14
1634-04-4	Methyl tert-butyl ether	ND		65	9.7
75-09-2	Methylene Chloride	ND		400	100
179601-23-1	m-Xylene & p-Xylene	ND		320	24
91-20-3	Naphthalene	ND		160	46
104-51-8	n-Butylbenzene	ND		240	41
103-65-1	N-Propylbenzene	ND		65	11
95-47-6	o-Xylene	ND		97	22
135-98-8	sec-Butylbenzene	ND		65	14
100-42-5	Styrene	ND		65	9.9
98-06-6	t-Butylbenzene	ND		65	12
127-18-4	Tetrachloroethene	ND		65	8.6
108-88-3	Toluene	ND		240	22
156-60-5	trans-1,2-Dichloroethene	ND		97	24
10061-02-6	trans-1,3-Dichloropropene	ND		65	11
79-01-6	Trichloroethene	ND		97	36
75-69-4	Trichlorofluoromethane	ND		320	18

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	99		80-121
460-00-4	4-Bromofluorobenzene (Surr)	100		80-120
1868-53-7	Dibromofluoromethane (Surr)	97		80-120
2037-26-5	Toluene-d8 (Surr)	100		80-120
98-08-8	Trifluorotoluene (Surr)	101		80-120

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FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82667-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111134 RA Lab Sample ID: 580-82667-10 RA  
 Matrix: Solid Lab File ID: 010219016.D  
 Analysis Method: 8260C Date Collected: 12/12/2018 15:00  
 Sample wt/vol: 8.56(g) Date Analyzed: 01/02/2019 16:26  
 Soil Aliquot Vol: 1.075 (mL) Dilution Factor: 1  
 Soil Extract Vol.: 10(mL) GC Column: DB-VRX ID: 0.25(mm)  
 % Moisture: 17.2 Level: (low/med) Medium  
 Analysis Batch No.: 292405 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-01-4	Vinyl chloride	NO	1	240	42

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	90		80-121
460-00-4	4-Bromofluorobenzene (Surr)	96		80-120
1868-53-7	Dibromofluoromethane (Surr)	88		80-120
2037-26-5	Toluene-d8 (Surr)	110		80-120
98-08-8	Trifluorotoluene (Surr)	91		80-120

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FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82667-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111135 Lab Sample ID: 580-82667-11  
 Matrix: Solid Lab File ID: L2618015.D  
 Analysis Method: 8260C Date Collected: 12/12/2018 00:01  
 Sample wt/vol: 10(g) Date Analyzed: 12/26/2018 19:05  
 Soil Aliquot Vol: 1.075 (mL) Dilution Factor: 1  
 Soil Extract Vol.: 10(mL) GC Column: DB-VRX ID: 0.25 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Medium  
 Analysis Batch No.: 292066 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
630-20-6	1,1,1,2-Tetrachloroethane	ND		40	11
71-55-6	1,1,1-Trichloroethane	ND		40	9.6
79-34-5	1,1,2,2-Tetrachloroethane	ND		20	7.6
79-00-5	1,1,2-Trichloroethane	ND		20	7.4
75-34-3	1,1-Dichloroethane	ND		40	4.2
75-35-4	1,1-Dichloroethene	ND		40	12
563-58-6	1,1-Dichloropropene	ND		40	5.3
87-61-6	1,2,3-Trichlorobenzene	ND		150	32
96-18-4	1,2,3-Trichloropropane	ND		40	12
120-82-1	1,2,4-Trichlorobenzene	ND		60	15
95-63-6	1,2,4-Trimethylbenzene	ND		40	14
96-12-8	1,2-Dibromo-3-Chloropropane	ND		250	40
106-93-4	1,2-Dibromoethane	ND		20	3.8
95-50-1	1,2-Dichlorobenzene	ND		40	8.7
107-06-2	1,2-Dichloroethane	ND		20	5.5
78-87-5	1,2-Dichloropropane	ND		20	6.6
108-67-8	1,3,5-Trimethylbenzene	ND		40	7.6
541-73-1	1,3-Dichlorobenzene	ND		60	13
142-28-9	1,3-Dichloropropane	ND		60	14
106-46-7	1,4-Dichlorobenzene	ND		60	11
594-20-7	2,2-Dichloropropane	ND		40	12
95-49-8	2-Chlorotoluene	ND		40	8.8
106-43-4	4-Chlorotoluene	ND		40	9.8
99-87-6	4-Isopropyltoluene	ND		40	10
71-43-2	Benzene	ND		30	7.6
108-86-1	Bromobenzene	ND		100	17
74-97-5	Bromochloromethane	ND		40	6.2
75-27-4	Bromodichloromethane	ND		60	13
75-25-2	Bromoform	ND		200	26
74-83-9	Bromomethane	ND		200	13
56-23-5	Carbon tetrachloride	ND		20	3.8
108-90-7	Chlorobenzene	ND		40	9.8
75-00-3	Chloroethane	ND		400	54
67-66-3	Chloroform	ND		40	4.2
74-87-3	Chloromethane	ND		100	10
156-59-2	cis-1,2-Dichloroethene	ND		60	13

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FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle

Job No.: 580-82667-1

SDG No.: \_\_\_\_\_

Client Sample ID: 18111135

Lab Sample ID: 580-82667-11

Matrix: Solid

Lab File ID: L2618015.D

Analysis Method: 8260C

Date Collected: 12/12/2018 00:01

Sample wt/vol: 10(g)

Date Analyzed: 12/26/2018 19:05

Soil Aliquot Vol: 1.075 (mL)

Dilution Factor: 1

Soil Extract Vol.: 10(mL)

GC Column: DB-VRX ID: 0.25(mm)

% Moisture: \_\_\_\_\_

Level: (low/med) Medium

Analysis Batch No.: 292066

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
10061-01-5	cis-1,3-Dichloropropene	ND		20	4.0
124-48-1	Dibromochloromethane	ND		40	11
74-95-3	Dibromomethane	ND		60	7.4
75-71-8	Dichlorodifluoromethane	ND		200	46
100-41-4	Ethylbenzene	ND		40	9.1
87-68-3	Hexachlorobutadiene	ND		150	33
98-82-8	Isopropylbenzene	ND		40	8.6
1634-04-4	Methyl tert-butyl ether	ND		40	6.0
75-09-2	Methylene Chloride	ND		250	65
179601-23-1	m-Xylene & p-Xylene	ND		200	15
91-20-3	Naphthalene	ND		100	28
104-51-8	n-Butylbenzene	ND		150	25
103-65-1	N-Propylbenzene	ND		40	6.9
95-47-6	o-Xylene	ND		60	13
135-98-8	sec-Butylbenzene	ND		40	8.6
100-42-5	Styrene	ND		40	6.1
98-06-6	t-Butylbenzene	ND		40	7.7
127-18-4	Tetrachloroethene	ND		40	5.3
108-88-3	Toluene	ND		150	14
156-60-5	trans-1,2-Dichloroethene	ND		60	15
10061-02-6	trans-1,3-Dichloropropene	ND		40	7.0
79-01-6	Trichloroethene	ND		60	22
75-69-4	Trichlorofluoromethane	ND		200	11

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	101		80-121
460-00-4	4-Bromofluorobenzene (Surr)	100		80-120
1868-53-7	Dibromofluoromethane (Surr)	99		80-120
2037-26-5	Toluene-d8 (Surr)	101		80-120
98-08-8	Trifluorotoluene (Surr)	102		80-120

*mw 1449*

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-82667-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 18111135 RA Lab Sample ID: 580-82667-11 RA  
 Matrix: Solid Lab File ID: 010219017.D  
 Analysis Method: 8260C Date Collected: 12/12/2018 00:01  
 Sample wt/vol: 10(g) Date Analyzed: 01/02/2019 16:51  
 Soil Aliquot Vol: 1.075 (mL) Dilution Factor: 1  
 Soil Extract Vol.: 10(mL) GC Column: DB-VRX ID: 0.25 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Medium  
 Analysis Batch No.: 292405 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-01-4	Vinyl chloride	<del>ND</del> <del>H</del>		150	26

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	85		80-121
460-00-4	4-Bromofluorobenzene (Surr)	100		80-120
1868-53-7	Dibromofluoromethane (Surr)	87		80-120
2037-26-5	Toluene-d8 (Surr)	112		80-120
98-08-8	Trifluorotoluene (Surr)	91		80-120





**MEMORANDUM**

DATE: August 9, 2019

TO: Seth Wing, START-IV Project Manager, E & E, Seattle, WA

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington *MW*

SUBJ: **Organic Data Quality Assurance Review, May Creek Removal Action Site, Renton, Washington**

REF: TO: TO-68HE0718F0470 PAN: 1004530.0470.001.01

The data quality assurance review of eight soil samples collected from the May Creek Removal Action site located in Renton, Washington, has been completed. Analysis for Extended Diesel Range Total Petroleum Hydrocarbons (Ecology Method NWTPH-Dx) was performed by Test America, Inc., Spokane, Washington. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Manual Process (S2B/4VM).

The samples were numbered:

19070130	19070131	19070132	19070133	19070134	19070135
19070136	19070137				

**Data Qualifications:**

**1. Sample Holding Times: Acceptable.**

The samples were maintained at  $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ . The samples were collected on July 12, 2019, extracted on July 16, 2019, and analyzed by July 17, 2019, therefore meeting QC criteria of less than 14 days between collection and extraction for soil samples and less than 40 days between extraction and analysis.

**2. Initial Calibration: Acceptable.**

Calculations were verified as correct. All relative percent differences (RPDs) were within the laboratory control limits.

**3. Continuing Calibration: Acceptable.**

Calculations were verified as correct. All percent differences (%Ds) were within the laboratory control limits.

**4. Blanks: Acceptable.**

A method blank was analyzed for each extraction batch for each matrix and analysis system.

Diesel- and motor oil-range TPHs were not detected in the method blank.

**5. System Monitoring Compounds (SMC): Acceptable.**

All recoveries of the SMCs were greater than 10% and within QC limits.

**6. Matrix Spike (MS) and MS Duplicate (MSD): Satisfactory.**

MS and MSD results were within QC limits except when interferences prevented acceptable recovery; no actions were taken based on MS/MSD outliers.

**7. Blank Spike (BS) and BS Duplicate (BSD): Acceptable.**

BS and BSD recoveries were within QC limits.

**8. Duplicates: Acceptable.**

All spike duplicate results were within QC limits.

**9. Quantitation and Quantitation Limits: Acceptable.**

Sample concentrations were correctly calculated.

**10. Laboratory Contact: Not Required.**

No laboratory contact was required.

**11. Overall Assessment of Data for Use**

A total of 16 results were validated in this data memorandum. No sample results were qualified as estimated quantities (J) based on duplicate precision outliers, spike accuracy outliers, holding time outliers, incorrect sample containers, or sample temperature outliers. No sample results were rejected (R).

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the analytical method(s), the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, and/or the Office of Emergency and Remedial Response Publication "National Functional Guidelines for Superfund Organic Methods Data Review, January 2019". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

H - The sample result is biased high.

J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

K - The bias of the sample is not known.

- L - The sample result is biased low.
- Q - Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.
- R - The data is rejected and unusable. The analyte may or may not be present in the sample.
- U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.

FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87649-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070130 Lab Sample ID: 580-87649-1  
 Matrix: Solid Lab File ID: 007F0701.D  
 Analysis Method: NWTPH-Dx Date Collected: 07/12/2019 15:18  
 Extraction Method: 3546 Date Extracted: 07/16/2019 12:08  
 Sample wt/vol: 10.546(g) Date Analyzed: 07/16/2019 21:14  
 Con. Extract Vol.: 10 (mL) Dilution Factor: 10  
 Injection Volume: 1 (uL) GC Column: ZB-1HT ID: 0.25 (mm)  
 % Moisture: 17.7 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 305807 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00163	#2 Diesel (C10-C24)	160	JQ	580	140
STL00299	Motor Oil (>C24-C36)	1700		580	200

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	78		50-150

*M. J. H.*

FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87649-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070131 Lab Sample ID: 580-87649-2  
 Matrix: Solid Lab File ID: 008F0801.D  
 Analysis Method: NWTPH-Dx Date Collected: 07/12/2019 15:24  
 Extraction Method: 3546 Date Extracted: 07/16/2019 12:08  
 Sample wt/vol: 10.635(g) Date Analyzed: 07/16/2019 21:36  
 Con. Extract Vol.: 10(mL) Dilution Factor: 40  
 Injection Volume: 1(uL) GC Column: ZB-1HT ID: 0.25(mm)  
 % Moisture: 18.3 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 305807 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00163	#2 Diesel (C10-C24)	ND		2300	570
STL00299	Motor Oil (>C24-C36)	8500		2300	810

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	62		50-150

*Mw 8-9-19*

FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87649-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070132 Lab Sample ID: 580-87649-3  
 Matrix: Solid Lab File ID: 009F0901.D  
 Analysis Method: NWTPH-Dx Date Collected: 07/12/2019 15:36  
 Extraction Method: 3546 Date Extracted: 07/16/2019 12:08  
 Sample wt/vol: 10.383(g) Date Analyzed: 07/16/2019 21:59  
 Con. Extract Vol.: 10 (mL) Dilution Factor: 1  
 Injection Volume: 1 (uL) GC Column: ZB-1HT ID: 0.25 (mm)  
 % Moisture: 34.8 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 305807 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00163	#2 Diesel (C10-C24)	52	JQ	74	18
STL00299	Motor Oil (>C24-C36)	400		74	26

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	84		50-150

*Mu 8-9-19*

FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87649-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070133 Lab Sample ID: 580-87649-4  
 Matrix: Solid Lab File ID: 010F1001.D  
 Analysis Method: NWTPH-Dx Date Collected: 07/12/2019 17:41  
 Extraction Method: 3546 Date Extracted: 07/16/2019 12:08  
 Sample wt/vol: 10.966(g) Date Analyzed: 07/16/2019 22:22  
 Con. Extract Vol.: 10(mL) Dilution Factor: 1  
 Injection Volume: 1(uL) GC Column: ZB-1HT ID: 0.25(mm)  
 % Moisture: 29.6 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 305807 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00163	#2 Diesel (C10-C24)	43	J <i>Q</i>	65	16
STL00299	Motor Oil (>C24-C36)	240		65	23

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	87		50-150

*Mu J-H*

FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87649-1  
SDG No.: \_\_\_\_\_  
Client Sample ID: 19070134 Lab Sample ID: 580-87649-5  
Matrix: Solid Lab File ID: 011F1101.D  
Analysis Method: NWTPH-Dx Date Collected: 07/12/2019 17:00  
Extraction Method: 3546 Date Extracted: 07/16/2019 12:08  
Sample wt/vol: 11.187(g) Date Analyzed: 07/16/2019 22:44  
Con. Extract Vol.: 10(mL) Dilution Factor: 1  
Injection Volume: 1(uL) GC Column: ZB-1HT ID: 0.25(mm)  
% Moisture: 7.2 GPC Cleanup: (Y/N) N  
Analysis Batch No.: 305807 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00163	#2 Diesel (C10-C24)	20	JQ	48	12
STL00299	Motor Oil (>C24-C36)	190		48	17

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	79		50-150





FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87649-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 09070135 Lab Sample ID: 580-87649-6  
 Matrix: Solid Lab File ID: 012F1201.D  
 Analysis Method: NWTPH-Dx Date Collected: 07/12/2019 17:08  
 Extraction Method: 3546 Date Extracted: 07/16/2019 12:08  
 Sample wt/vol: 12.768(g) Date Analyzed: 07/16/2019 23:06  
 Con. Extract Vol.: 10(mL) Dilution Factor: 1  
 Injection Volume: 1(uL) GC Column: ZB-1HT ID: 0.25(mm)  
 % Moisture: 14.7 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 305807 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00163	#2 Diesel (C10-C24)	23	J <i>Q</i>	46	11
STL00299	Motor Oil (>C24-C36)	230		46	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	80		50-150

*Mu BPH*

FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87649-1  
SDG No.: \_\_\_\_\_  
Client Sample ID: 09070136 Lab Sample ID: 580-87649-7  
Matrix: Solid Lab File ID: 013F1301.D  
Analysis Method: NWTPH-Dx Date Collected: 07/12/2019 17:17  
Extraction Method: 3546 Date Extracted: 07/16/2019 12:08  
Sample wt/vol: 10.879 (g) Date Analyzed: 07/16/2019 23:29  
Con. Extract Vol.: 10 (mL) Dilution Factor: 10  
Injection Volume: 1 (uL) GC Column: ZB-1HT ID: 0.25 (mm)  
% Moisture: 6.4 GPC Cleanup: (Y/N) N  
Analysis Batch No.: 305807 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00163	#2 Diesel (C10-C24)	ND		490	120
STL00299	Motor Oil (>C24-C36)	1000		490	170

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	73		50-150



FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87649-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070137 Lab Sample ID: 580-87649-8  
 Matrix: Solid Lab File ID: 015F1501.D  
 Analysis Method: NWTPH-Dx Date Collected: 07/12/2019 17:26  
 Extraction Method: 3546 Date Extracted: 07/16/2019 12:08  
 Sample wt/vol: 10.924(g) Date Analyzed: 07/17/2019 00:14  
 Con. Extract Vol.: 10 (mL) Dilution Factor: 4  
 Injection Volume: 1 (uL) GC Column: ZB-1HT ID: 0.25 (mm)  
 % Moisture: 6.7 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 305807 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00163	#2 Diesel (C10-C24)	83	JQ	200	48
STL00299	Motor Oil (>C24-C36)	980	FL mu	200	69

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	65		50-150

*Mu JQ-19*



## ecology and environment, inc.

Global Environmental Specialists

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### MEMORANDUM

DATE: January 7, 2019

TO: Steve Hall, START-IV Project Manager, E & E, Seattle, Washington

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington *MW*

SUBJ: **Organic Data Quality Assurance Review, May Creek Removal Action Site, Renton, Washington**

REF: TO: TO-68HE0718F0470 PAN: 1004530.0470.001.01

The data quality assurance review of one soil sample collected from the May Creek Removal Action site located in Renton, Washington, has been completed. HEM and SGT-HEM (Oil and Grease; EPA Method 1664B) was performed by Test America, Inc., Nashville, Tennessee. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Manual Process (S2B/4VM).

The sample was numbered: 18111121

#### Data Qualifications:

**1. Sample Holding Times: Acceptable.**

The sample was maintained within the QC limits of  $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ . The sample was collected on December 10, 2018, extracted on December 17, 2018, and analyzed by December 27, 2018, therefore meeting QC criteria of less than 28 days between collection and analysis for water samples. Water QC limits were used in the absence of soil limits.

**2. Blanks: Acceptable.**

A method blank was analyzed for each extraction batch for each matrix and analysis system. No analytes were detected in the method blank.

**3. Laboratory Control Samples: Acceptable.**

Laboratory control sample results were within QC limits.

**4. Duplicates: Acceptable.**

All laboratory control sample duplicate results were within QC limits.

**5. Quantitation and Quantitation Limits: Acceptable.**

Sample concentrations were correctly calculated.

**6. Laboratory Contact: Not Required.**

No laboratory contact was required.

**7. Overall Assessment of Data for Use**

A total of two results were validated in this data memorandum. No sample results were qualified as estimated quantities (J) based on laboratory control sample outliers, duplicate precision outliers, holding time outliers, incorrect sample containers, or sample temperature outliers. No sample results were rejected (R).

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the analytical method(s), the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, and/or the Office of Emergency and Remedial Response Publication "National Functional Guidelines for Superfund Organic Methods Data Review, January 2017". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

- J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
- Q - Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.
- R - The data is rejected and unusable. The analyte may or may not be present in the sample.
- U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.

1B-IN  
INORGANIC ANALYSIS DATA SHEET  
GENERAL CHEMISTRY

Client Sample ID: 18111121

Lab Sample ID: 490-165017-1

Lab Name: TestAmerica Nashville

Job No.: 490-165017-1

SDG ID.:

Matrix: Solid

Date Sampled: 12/10/2018 15:50

Reporting Basis: DRY

Date Received: 12/14/2018 10:00

% Solids: 93.0

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
	HEM	6.7	12.8	4.5	mg/L	J	Q	1	1664B
	SGT-HEM	6.7	12.8	4.5	mg/L	J	Q	1	1664B

*MW 1-7-10*



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### MEMORANDUM

DATE: January 10, 2019

TO: Steve Hall, START-IV Project Manager, E & E, Seattle, Washington

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington *MW*

SUBJ: **Inorganic Data Quality Assurance Review, May Creek Removal Action Site, Renton, Washington**

REF: TO: TO-68HE0718F0470 PAN: 1004530.0470.001.01

The data quality assurance review of 19 soil and 12 water samples collected from the May Creek Removal Action site in Renton, Washington, has been completed. Target Analyte List (TAL) metals and Toxicity Leaching Procedure (TCLP) Resource Conservation and Recovery Act (RCRA) analyses (EPA Methods 6010 and 7471) were performed by Environmental Monitoring and Technologies, Inc., Morton Grove, Illinois. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Manual Process (S2B/4VM).

The samples were numbered:

18111116	18111117	18111118	18111119	18111120
18111121	18111122	18111123	18111124	18111401
18111402	18111403	18111404	18111405	18111406
18111408	18111409	18111410	18111411	18111412
18111413	18110003	18110004	18111127	18111128
18111129	18111130	18111131	18111132	18111133
18111134				

#### Data Qualifications:

##### 1. Sample Holding Times: Acceptable.

The samples were maintained at < 6°C (only applies to mercury). The samples were collected between December 10 and 12, 2018, and were analyzed by December 19, 2018, therefore meeting QC criteria of less than 6 months between collection, extraction, and analysis (28 days for mercury).

##### 2. Initial and Continuing Calibration: Satisfactory.

A minimum of one calibration standard and a blank were analyzed at the beginning of the ICP analysis sequence and after every 10 samples. No results were greater than 110% of the highest calibration standard. All ICP recoveries were within the QC limits except silver with a high recovery associated with samples 18111131, 18111132, 18111133, and 18111134; associated positive results were qualified as estimated quantities with a high bias (JH). All AA recoveries were within QC limits and the initial calibration correlation coefficient was > 0.995.

**3. Blanks: Satisfactory.**

A preparation blank was analyzed for each 20 samples or per matrix per concentration level. Blanks were analyzed after each Initial or Continuing Calibration Verification. There were no detections in any blanks that potentially affected sample results except zinc (0.0423 mg/L), beryllium (0.555 ug/L), and calcium (0.0562 mg/L) associated with the water samples. Associated positive sample results less than the reporting limits were qualified as not detected (U).

**4. ICP Interference Check Sample: Acceptable.**

An Interference Check Sample (ICS) was analyzed at the beginning of each sequence or at least twice every 8 hours, whichever was more frequent. All applicable ICS (solution AB) results were within QC limits of 80% - 120% recovery.

**5. ICP Serial Dilution: Satisfactory.**

A serial dilution analysis was performed per matrix per concentration or per sample delivery group, whichever was more frequent. All applicable serial dilution results were within QC limits except calcium and iron associated with batch S8L0171, aluminum, calcium, and iron associated with batch S8L0264 with recoveries higher than the original sample. Associated positive sample results were qualified as estimated quantities with a low bias (JL) for original sample results less than the serial dilution results.

**6. Matrix Spike Analysis: Satisfactory.**

A matrix spike analysis was performed per SDG or per matrix per concentration level, whichever was more frequent. Spike recoveries were within the QC limits except antimony, beryllium, potassium, and sodium with low recoveries and barium with a high recovery associated with batch B8L0398, low beryllium, antimony, copper, and lead recoveries and high barium, lead, and magnesium recoveries associated with batch B8L0514. Positive samples results associated with high recoveries were qualified as estimated quantities with a high bias (JH) and positive results and sample quantitation limits associated with low recoveries were qualified as estimated quantities with a low bias (JL or UJL).

**7. Duplicate Analysis: Satisfactory.**

A laboratory spike duplicate analysis was performed per SDG or per matrix per concentration level, whichever was more frequent. All spike duplicate results were within QC limits except silver and antimony associated with batch B8L0398 and magnesium associated with batch B8L0514; associated sample results were qualified as estimated quantities with an unknown bias (JK or UJK).

**8. Laboratory Control Sample Analysis: Acceptable.**

A Laboratory Control Sample (LCS) was analyzed per SDG per matrix. All LCS results were within the established control limits.

**9. Overall Assessment of Data for Use**

A total of 713 results were validated in this data memorandum. No sample results were qualified as estimated quantities (J) based on holding time outliers, incorrect sample containers, sample temperature outliers, or serial dilution outliers. No sample results were rejected (R). A total of 33 sample results were qualified as estimated quantities (J) based on spike accuracy outliers and a total of 33 sample results were qualified as estimated quantities (J) based on duplicate precision outliers. Beryllium, calcium, and zinc were detected in laboratory blanks.



The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the analytical method(s), the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, and/or the Office of Emergency and Remedial Response Publication "National Functional Guidelines for Superfund Inorganic Methods Data Review, January 2017". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

#### Data Qualifiers and Definitions

- H - The sample result is biased high.
- J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
- K - The bias of the sample is not known.
- L - The sample result is biased low.
- Q - Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.
- R - The data is rejected and unusable. The analyte may or may not be present in the sample.
- U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.

# 1 - FORM I ANALYSIS DATA SHEET

18110003

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0510-01
Sampled:	12/12/18 16:30	Prepared:	12/18/18 11:09
Solids:		Preparation:	3015_METALS_PREP
Initial/Final:	40 ml / 50 ml	Dilution:	1
Batch:	B8L0569	Sequence:	S8L0264
		Calibration:	EL80047
		Instrument:	ICP-AES 7400

CAS NO.	COMPOUND	CONC. (mg/L)	MDL	LOD	RL	Q
7440-38-2	Arsenic	0.244	0.0200	0.0400	0.0500	U
7440-39-3	Barium		0.0100	0.0200	0.0500	
7440-43-9	Cadmium		0.00140	0.00400	0.00500	U
7440-47-3	Chromium		0.0100	0.0200	0.0500	
7439-92-1	Lead		0.0120	0.0400	0.0500	
7782-49-2	Selenium		0.0200	0.0400	0.0500	
7440-22-4	Silver		0.00200	0.00400	0.00500	↓

Italicized = secondary result

*John H. H. H.*

## 18110003

CAS NO.	COMPOUND	CONC. (mg/L)	MDL	LOD	RL	Q
7439-97-6	Mercury		0.00010	0.00025	0.00050	0

Jim Horta

# 1 - FORM I

## ANALYSIS DATA SHEET

18110004

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0510-02
		File ID:	12182018-236
Sampled:	12/12/18 16:45	Prepared:	12/18/18 11:09
		Analyzed:	12/19/18 02:38
Solids:		Preparation:	3015_METALS_PREP
		Dilution:	1
Initial/Final:	40 ml / 50 ml		
Batch:	B8L0569	Sequence:	S8L0264
		Calibration:	EL80047
		Instrument:	ICP-AES 7400

CAS NO.	COMPOUND	CONC. (mg/L)	MDL	LOD	RL	Q
7440-38-2	Arsenic	0.278	0.0200	0.0400	0.0500	U
7440-39-3	Barium		0.0100	0.0200	0.0500	
7440-43-9	Cadmium		0.00140	0.00400	0.00500	U
7440-47-3	Chromium		0.0100	0.0200	0.0500	↓
7439-92-1	Lead		0.0120	0.0400	0.0500	
7782-49-2	Selenium		0.0200	0.0400	0.0500	
7440-22-4	Silver		0.00200	0.00400	0.00500	

Italicized = secondary result

*MWH-19*

**1 - FORM I**  
**ANALYSIS DATA SHEET**

18110004

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set				
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01				
Matrix:	Solid	Laboratory ID:	18L0510-02	File ID:	122018L-011		
Sampled:	12/12/18 16:45	Prepared:	12/20/18 07:15	Analyzed:	12/20/18 10:28		
Solids:		Preparation:	245-7470_HG_PREP	Dilution:	1		
Initial/Final:	50 ml / 50 ml						
Batch:	B8L0639	Sequence:	S8L0300	Calibration:	EL80055	Instrument:	Hg Hydra

CAS NO.	COMPOUND	CONC. (mg/L)	MDL	LOD	RL	Q
7439-97-6	Mercury		0.00010	0.00025	0.00050	U

MW Holz

# 1 - FORM I ANALYSIS DATA SHEET

18111116

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0443-04
		File ID:	12122018-034
Sampled:	12/10/18 11:00	Prepared:	12/12/18 09:26
		Analyzed:	12/12/18 18:04
Solids:	77.81	Preparation:	3050_METALS_PREP
		Dilution:	100
Initial/Final:	2.2236 g / 50 ml		
Batch:	B8L0398	Sequence:	S8L0171
		Calibration:	EL80031
		Instrument:	ICP-AES 7400

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7429-90-5	Aluminum	17600	272	578	722	DM
7440-36-0	<i>Antimony</i>		52.0	116	144	U
7440-38-2	<i>Arsenic</i>		52.0	116	144	U
7440-39-3	<i>Barium</i>	<del>74.1</del>	40.5	116	144	J. A. Q.
7440-41-7	<i>Beryllium</i>		5.78	11.6	14.4	U
7440-43-9	<i>Cadmium</i>		5.20	11.6	14.4	U
7440-70-2	<i>Calcium</i>	<del>3460</del>	289	578	722	D. B. M.
7440-47-3	<i>Chromium</i>		31.8	116	144	U
7440-48-4	<i>Cobalt</i>		8.67	28.9	144	U
7440-50-8	<i>Copper</i>		56.1	116	144	U
7439-89-6	Iron	19600	106	231	289	DM J. L.
7439-92-1	<i>Lead</i>		57.8	116	144	U
7439-95-4	<i>Magnesium</i>	<del>5780</del>	197	578	722	U
7439-96-5	<i>Manganese</i>	265	28.9	57.8	144	DM
7440-02-0	<i>Nickel</i>		52.0	116	144	U
7440-09-7	<i>Potassium</i>	<del>926</del>	243	578	722	D. B. M.
7782-49-2	<i>Selenium</i>		52.0	116	144	U
7440-22-4	<i>Silver</i>		9.25	28.9	144	U
7440-23-5	<i>Sodium</i>		260	578	722	U
7440-28-0	<i>Thallium</i>		38.1	116	144	U
7440-62-2	<i>Vanadium</i>	<del>48.3</del>	34.7	116	144	J. A. Q.
7440-66-6	<i>Zinc</i>		57.8	116	144	U

Italicized = secondary result

J. A. H. H. H.

# 1 - FORM I ANALYSIS DATA SHEET

18111116

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0443-04RE1
		File ID:	12122018-052
Sampled:	12/10/18 11:00	Prepared:	12/12/18 09:26
		Analyzed:	12/12/18 19:17
Solids:	77.81	Preparation:	3050_METALS_PREP
		Dilution:	10
Initial/Final:	2.2236 g / 50 ml		
Batch:	B8L0398	Sequence:	S8L0171
		Calibration:	EL80031
		Instrument:	ICP-AES 7400

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7429-90-5	Aluminum	<del>18200</del>	27.2	57.8	72.2	<del>D, B, J</del>
7440-36-0	Antimony		5.20	11.6	14.4	<del>U</del>
7440-38-2	Arsenic	8.06	5.20	11.6	14.4	J, D
7440-39-3	Barium	<del>72.7</del>	4.05	11.6	14.4	<del>D</del>
7440-41-7	Beryllium		0.578	1.16	1.44	<del>U</del>
7440-43-9	Cadmium	<del>0.722</del>	0.520	1.16	1.44	<del>J, D</del>
7440-70-2	Calcium	3590	28.9	57.8	72.2	<del>D, B, J</del>
7440-47-3	Chromium	<del>127.1</del>	3.18	11.6	14.4	<del>D</del>
7440-48-4	Cobalt	9.57	0.867	2.89	14.4	J, D
7440-50-8	Copper	41.2	5.61	11.6	14.4	<del>D</del>
7439-89-6	Iron	20400	10.6	23.1	28.9	<del>D</del>
7439-92-1	Lead	6.96	5.78	11.6	14.4	<del>J, D</del>
7439-95-4	Magnesium	5840	19.7	57.8	72.2	<del>D</del>
7439-96-5	Manganese	274	2.89	5.78	14.4	<del>D</del>
7440-02-0	Nickel	<del>38.2</del>	5.20	11.6	14.4	<del>D</del>
7440-09-7	Potassium	915	24.3	57.8	72.2	<del>D, B, J</del>
7782-49-2	Selenium		5.20	11.6	14.4	<del>U</del>
7440-22-4	Silver	2.80	0.925	2.89	14.4	J, D
7440-23-5	Sodium	<del>784</del>	26.0	57.8	72.2	<del>D</del>
7440-28-0	Thallium	3.81	3.81	11.6	14.4	J, D
7440-62-2	Vanadium	<del>47.2</del>	3.47	11.6	14.4	<del>D</del>
7440-66-6	Zinc	<del>35.0</del>	5.78	11.6	14.4	<del>D</del>

Italicized = secondary result

*MW Holg*

# 1 - FORM I ANALYSIS DATA SHEET

18111116

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0443-04RE2
Sampled:	12/10/18 11:00	Prepared:	12/12/18 09:26
Solids:	77.81	Preparation:	3050_METALS_PREP
Initial/Final:	2.2236 g / 50 ml	Dilution:	1
Batch:	B8L0398	Sequence:	S8L0171
		Calibration:	EL80031
		Instrument:	ICP-AES 7400

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7429-90-5	Aluminum	<del>18100</del>	<del>2.72</del>	<del>5.78</del>	<del>7.22</del>	<del>U</del> <i>JG</i>
7440-36-0	Antimony		0.520	1.16	1.44	U <i>JK</i>
7440-38-2	Arsenic	<del>7.62</del>	<del>0.520</del>	<del>1.16</del>	<del>1.44</del>	<del>U</del> <i>JH</i>
7440-39-3	Barium	71.3	0.405	1.16	1.44	U <i>JL</i>
7440-41-7	Beryllium		0.0578	0.116	0.144	
7440-43-9	Cadmium	0.699	0.0520	0.116	0.144	
7440-70-2	Calcium	<del>3380</del>	<del>2.89</del>	<del>5.78</del>	<del>7.22</del>	<del>U</del> <i>JG</i>
7440-47-3	Chromium	27.5	0.318	1.16	1.44	
7440-48-4	Cobalt	8.80	0.0867	0.289	1.44	
7440-50-8	Copper	38.0	0.561	1.16	1.44	<i>JH</i>
7439-89-6	Iron	<del>17160</del>	<del>1.06</del>	<del>2.31</del>	<del>2.89</del>	<del>U</del> <i>JG</i>
7439-92-1	Lead	9.24	0.578	1.16	1.44	
7439-95-4	Magnesium	<del>5490</del>	<del>1.97</del>	<del>5.78</del>	<del>7.22</del>	<del>U</del> <i>JG</i>
7439-96-5	Manganese	251	0.289	0.578	1.44	
7440-02-0	Nickel	31.6	0.520	1.16	1.44	
7440-09-7	Potassium	906	2.43	5.78	7.22	<i>JL</i>
7782-49-2	Selenium		0.520	1.16	1.44	U
7440-22-4	Silver	<del>1.74</del>	<del>0.0925</del>	<del>0.289</del>	<del>1.44</del>	<i>JL</i>
7440-23-5	Sodium	166	2.60	5.78	7.22	
7440-28-0	Thallium	<del>7.96</del>	<del>0.381</del>	<del>1.16</del>	<del>1.44</del>	
7440-62-2	Vanadium	44.8	0.347	1.16	1.44	
7440-66-6	Zinc	34.9	0.578	1.16	1.44	

Italicized = secondary result

*MH019*



**1 - FORM I**  
**ANALYSIS DATA SHEET**

18111116

Laboratory:	Environmental Monitoring and Tech			SDG:	10RB-2nd Set	
Client:	Ecology and Environment, Inc.			Project:	1004530.0470.001.01	
Matrix:	Solid	Laboratory ID:	18L0443-04	File ID:	121718S-026	
Sampled:	12/10/18 11:00	Prepared:	12/17/18 07:35	Analyzed:	12/17/18 12:30	
Solids:	77.81	Preparation:	7471_HG_PREP	Dilution:	1	
Initial/Final:	0.5254 g / 50 ml					
Batch:	B8L0513	Sequence:	S8L0231	Calibration:	EL80039	Instrument: Hg Hydra

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7439-97-6	Mercury	0.045	0.024	0.049	0.073	JQ

*MwH019*

# 1 - FORM I ANALYSIS DATA SHEET

18111117

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0443-05
Sampled:	12/10/18 11:30	Prepared:	12/12/18 09:26
Solids:	78.07	Preparation:	3050_METALS_PREP
Initial/Final:	2.1819 g / 50 ml	Dilution:	100
Batch:	B8L0398	Sequence:	S8L0171
		Calibration:	EL80031
		Instrument:	ICP-AES 7400

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7429-90-5	Aluminum	13400	276	587	734	<i>DM</i>
7440-36-0	<i>Antimony</i>		52.8	117	147	<i>U W</i>
7440-38-2	<i>Arsenic</i>		52.8	117	147	<i>U W</i>
7440-39-3	<i>Barium</i>	64.6	41.1	117	147	<i>J, DM</i>
7440-41-7	<i>Beryllium</i>		5.87	11.7	14.7	<i>U</i>
7440-43-9	<i>Cadmium</i>		5.28	11.7	14.7	<i>U</i>
7440-70-2	<i>Calcium</i>	3480	294	587	734	<i>D, B, W</i>
7440-47-3	<i>Chromium</i>	46.7	32.3	117	147	<i>J, D Q</i>
7440-48-4	<i>Cobalt</i>	9.10	8.81	29.4	147	<i>J, DM Q</i>
7440-50-8	<i>Copper</i>	230	56.9	117	147	<i>DM</i>
7439-89-6	<i>Iron</i>	30900	108	235	294	<i>D JL</i>
7439-92-1	<i>Lead</i>	267	58.7	117	147	<i>D</i>
7439-95-4	<i>Magnesium</i>	4250	200	587	734	<i>D</i>
7439-96-5	<i>Manganese</i>	337	29.4	58.7	147	<i>DM</i>
7440-02-0	<i>Nickel</i>		52.8	117	147	<i>U</i>
7440-09-7	<i>Potassium</i>	859	247	587	734	<i>D, B, W</i>
7782-49-2	<i>Selenium</i>		52.8	117	147	<i>U</i>
7440-22-4	<i>Silver</i>		9.39	29.4	147	<i>U</i>
7440-23-5	<i>Sodium</i>		264	587	734	<i>U</i>
7440-28-0	<i>Thallium</i>		38.7	117	147	<i>U</i>
7440-62-2	<i>Vanadium</i>	40.5	35.2	117	147	<i>J, D Q</i>
7440-66-6	<i>Zinc</i>	154	58.7	117	147	<i>D</i>

Italicized = secondary result

*DM H019*

# 1 - FORM I ANALYSIS DATA SHEET

18111117

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0443-05RE1
Sampled:	12/10/18 11:30	Prepared:	12/12/18 09:26
Solids:	78.07	Preparation:	3050_METALS_PREP
Initial/Final:	2.1819 g / 50 ml	Dilution:	10
Batch:	B8L0398	Sequence:	S8L0171
		Calibration:	EL80031
		Instrument:	ICP-AES 7400

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7429-90-5	<del>Aluminum</del>	<del>15600</del>	<del>27.6</del>	<del>58.7</del>	<del>73.4</del>	<del>D, E, M, JL</del>
7440-36-0	<del>Antimony</del>		<del>5.28</del>	<del>11.7</del>	<del>14.7</del>	<del>U</del>
7440-38-2	<del>Arsenic</del>	<del>10.9</del>	<del>5.28</del>	<del>11.7</del>	<del>14.7</del>	<del>J, D, M, Q</del>
7440-39-3	<del>Barium</del>	<del>73.6</del>	<del>4.11</del>	<del>11.7</del>	<del>14.7</del>	<del>D, M</del>
7440-41-7	<del>Beryllium</del>		<del>0.587</del>	<del>1.17</del>	<del>1.47</del>	<del>U</del>
7440-43-9	<del>Cadmium</del>	<del>3.41</del>	<del>0.528</del>	<del>1.17</del>	<del>1.47</del>	<del>D, M</del>
7440-70-2	<del>Calcium</del>	<del>4020</del>	<del>29.4</del>	<del>58.7</del>	<del>73.4</del>	<del>D, B, M, JL</del>
7440-47-3	<del>Chromium</del>	<del>52.7</del>	<del>3.23</del>	<del>11.7</del>	<del>14.7</del>	<del>D, M</del>
7440-48-4	<del>Cobalt</del>	<del>9.98</del>	<del>0.881</del>	<del>2.94</del>	<del>14.7</del>	<del>J, D, Q</del>
7440-50-8	<del>Copper</del>	<del>269</del>	<del>5.69</del>	<del>11.7</del>	<del>14.7</del>	<del>D, M</del>
7439-89-6	<del>Iron</del>	<del>36200</del>	<del>10.8</del>	<del>23.5</del>	<del>29.4</del>	<del>D, E, M, JL</del>
7439-92-1	<del>Lead</del>	<del>312</del>	<del>5.87</del>	<del>11.7</del>	<del>14.7</del>	<del>D, M</del>
7439-95-4	<del>Magnesium</del>	<del>4860</del>	<del>20.0</del>	<del>58.7</del>	<del>73.4</del>	<del>D</del>
7439-96-5	<del>Manganese</del>	<del>384</del>	<del>2.94</del>	<del>5.87</del>	<del>14.7</del>	<del>D</del>
7440-02-0	<del>Nickel</del>	<del>45.3</del>	<del>5.28</del>	<del>11.7</del>	<del>14.7</del>	<del>D, M</del>
7440-09-7	<del>Potassium</del>	<del>918</del>	<del>24.7</del>	<del>58.7</del>	<del>73.4</del>	<del>D, B, M</del>
7782-49-2	<del>Selenium</del>		<del>5.28</del>	<del>11.7</del>	<del>14.7</del>	<del>U</del>
7440-22-4	<del>Silver</del>	<del>4.23</del>	<del>0.939</del>	<del>2.94</del>	<del>14.7</del>	<del>J, D, M, Q</del>
7440-23-5	<del>Sodium</del>	<del>261</del>	<del>26.4</del>	<del>58.7</del>	<del>73.4</del>	<del>D, M</del>
7440-28-0	<del>Thallium</del>		<del>3.87</del>	<del>11.7</del>	<del>14.7</del>	<del>U</del>
7440-62-2	<del>Vanadium</del>	<del>41.3</del>	<del>3.52</del>	<del>11.7</del>	<del>14.7</del>	<del>D, M</del>
7440-66-6	<del>Zinc</del>	<del>177</del>	<del>5.87</del>	<del>11.7</del>	<del>14.7</del>	<del>D, M</del>

Italicized = secondary result

MwHofa

# 1 - FORM I ANALYSIS DATA SHEET

18111117

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0443-05RE2
		File ID:	12122018-075
Sampled:	12/10/18 11:30	Prepared:	12/12/18 09:26
		Analyzed:	12/12/18 20:52
Solids:	78.07	Preparation:	3050_METALS_PREP
		Dilution:	1
Initial/Final:	2.1819 g / 50 ml		
Batch:	B8L0398	Sequence:	S8L0171
		Calibration:	EL80031
		Instrument:	ICP-AES 7400

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7429-90-5	<del>Aluminum</del>	<del>15700</del>	<del>2.76</del>	<del>5.87</del>	<del>7.34</del>	<del>EA JH</del>
7440-36-0	Antimony		0.528	1.17	1.47	U JH
7440-38-2	<del>Arsenic</del>	<del>10.8</del>	<del>0.528</del>	<del>1.17</del>	<del>1.47</del>	<del>JA</del>
7440-39-3	Barium	74.0	0.411	1.17	1.47	JH
7440-41-7	Beryllium		0.0587	0.117	0.147	U JH
7440-43-9	Cadmium	3.11	0.0528	0.117	0.147	
7440-70-2	<del>Calcium</del>	<del>3800</del>	<del>2.94</del>	<del>5.87</del>	<del>7.34</del>	<del>B, E JH</del>
7440-47-3	Chromium	58.5	0.323	1.17	1.47	
7440-48-4	Cobalt	9.19	0.0881	0.294	1.47	
7440-50-8	Copper	259	0.569	1.17	1.47	
7439-89-6	<del>Iron</del>	<del>28100</del>	<del>1.08</del>	<del>2.35</del>	<del>2.94</del>	<del>E JH</del>
7439-92-1	Lead	284	0.587	1.17	1.47	
7439-95-4	<del>Magnesium</del>	<del>1690</del>	<del>2.00</del>	<del>5.87</del>	<del>7.34</del>	<del>E JH</del>
7439-96-5	Manganese	359	0.294	0.587	1.47	
7440-02-0	Nickel	41.2	0.528	1.17	1.47	
7440-09-7	Potassium	936	2.47	5.87	7.34	B JH
7782-49-2	Selenium		0.528	1.17	1.47	U
7440-22-4	<del>Silver</del>	<del>2.81</del>	<del>0.0939</del>	<del>0.294</del>	<del>1.47</del>	<del>W</del>
7440-23-5	Sodium	268	2.64	5.87	7.34	JH
7440-28-0	<del>Thallium</del>	<del>2.33</del>	<del>0.387</del>	<del>1.17</del>	<del>1.47</del>	<del>W</del>
7440-62-2	Vanadium	39.6	0.352	1.17	1.47	
7440-66-6	Zinc	172	0.587	1.17	1.47	

Italicized = secondary result

*MWHof9*

**1 - FORM I**  
**ANALYSIS DATA SHEET**

18111117

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set				
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01				
Matrix:	Solid	Laboratory ID:	18L0443-05	File ID:	121718S-027		
Sampled:	12/10/18 11:30	Prepared:	12/17/18 07:35	Analyzed:	12/17/18 12:32		
Solids:	78.07	Preparation:	7471_HG_PREP	Dilution:	1		
Initial/Final:	0.5409 g / 50 ml						
Batch:	B8L0513	Sequence:	S8L0231	Calibration:	EL80039	Instrument:	Hg Hydra

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7439-97-6	Mercury	0.043	0.024	0.047	0.071	J Q

*Mr. Hols*

# 1 - FORM I ANALYSIS DATA SHEET

18111118

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0443-06
		File ID:	12122018-036
Sampled:	12/10/18 13:45	Prepared:	12/12/18 09:26
		Analyzed:	12/12/18 18:12
Solids:	78.61	Preparation:	3050_METALS_PREP
		Dilution:	100
Initial/Final:	2.0847 g / 50 ml		
Batch:	B8L0398	Sequence:	S8L0171
		Calibration:	EL80031
		Instrument:	ICP-AES 7400

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7429-90-5	Aluminum	19400	287	610	763	<i>DTM</i>
7440-36-0	<i>Antimony</i>		54.9	122	153	U
7440-38-2	<i>Arsenic</i>		54.9	122	153	U
7440-39-3	<i>Barium</i>	78.7	42.7	122	153	<i>J, AmQ</i>
7440-41-7	<i>Beryllium</i>		6.10	12.2	15.3	U
7440-43-9	<i>Cadmium</i>		5.49	12.2	15.3	U
7440-70-2	<i>Calcium</i>	2960	305	610	763	<i>D, B, M</i>
7440-47-3	<i>Chromium</i>		33.6	122	153	U
7440-48-4	<i>Cobalt</i>	10.7	9.15	30.5	153	<i>J, AmQ</i>
7440-50-8	<i>Copper</i>		59.2	122	153	<i>AmQ</i>
7439-89-6	<i>Iron</i>	20600	112	244	305	<i>DTM, JL</i>
7439-92-1	<i>Lead</i>		61.0	122	153	U
7439-95-4	<i>Magnesium</i>	6400	207	610	763	<i>D</i>
7439-96-5	<i>Manganese</i>	289	30.5	61.0	153	<i>AmQ</i>
7440-02-0	<i>Nickel</i>		54.9	122	153	U
7440-09-7	<i>Potassium</i>	786	256	610	763	<i>D, B, M</i>
7782-49-2	<i>Selenium</i>		54.9	122	153	U
7440-22-4	<i>Silver</i>		9.76	30.5	153	U
7440-23-5	<i>Sodium</i>		275	610	763	U
7440-28-0	<i>Thallium</i>		40.3	122	153	U
7440-62-2	<i>Vanadium</i>	44.2	36.6	122	153	<i>J, AmQ</i>
7440-66-6	<i>Zinc</i>		61.0	122	153	<i>AmQ</i>

Italicized = secondary result

*AmQ*

# 1 - FORM I ANALYSIS DATA SHEET

18111118

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0443-06RE1
Sampled:	12/10/18 13:45	Prepared:	12/12/18 09:26
Solids:	78.61	Preparation:	3050_METALS_PREP
Initial/Final:	2.0847 g / 50 ml	Dilution:	10
Batch:	B8L0398	Sequence:	S8L0171
		Calibration:	EL80031
		Instrument:	ICP-AES 7400

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7429-90-5	<i>Aluminum</i>	20200	28.7	61.0	76.3	D, B, JL
7440-36-0	<i>Antimony</i>		5.49	12.2	15.3	J, D, Q
7440-38-2	<i>Arsenic</i>	8.15	5.49	12.2	15.3	J, D, Q
7440-39-3	<i>Barium</i>	81.0	4.27	12.2	15.3	D, B, JL
7440-41-7	<i>Beryllium</i>		0.610	1.22	1.53	U
7440-43-9	<i>Cadmium</i>	0.610	0.549	1.22	1.53	J, D, Q
7440-70-2	<i>Calcium</i>	3100	30.5	61.0	76.3	D, B, JL
7440-47-3	<i>Chromium</i>	29.1	3.36	12.2	15.3	D, B, JL
7440-48-4	<i>Cobalt</i>	10.3	0.915	3.05	15.3	J, D, Q
7440-50-8	<i>Copper</i>	40.1	5.92	12.2	15.3	D, B, JL
7439-89-6	<i>Iron</i>	21500	11.2	24.4	30.5	D, B, JL
7439-92-1	<i>Lead</i>	42.6	6.10	12.2	15.3	D, B, JL
7439-95-4	<i>Magnesium</i>	6550	20.7	61.0	76.3	D, B, JL
7439-96-5	<i>Manganese</i>	300	3.05	6.10	15.3	D, B, JL
7440-02-0	<i>Nickel</i>	40.9	5.49	12.2	15.3	D, B, JL
7440-09-7	<i>Potassium</i>	838	25.6	61.0	76.3	D, B, JL
7782-49-2	<i>Selenium</i>		5.49	12.2	15.3	U
7440-22-4	<i>Silver</i>	2.38	0.976	3.05	15.3	J, D, Q
7440-23-5	<i>Sodium</i>	136	27.5	61.0	76.3	D, B, JL
7440-28-0	<i>Thallium</i>	5.40	4.03	12.2	15.3	J, D, Q
7440-62-2	<i>Vanadium</i>	47.4	3.66	12.2	15.3	D, B, JL
7440-66-6	<i>Zinc</i>	33.5	6.10	12.2	15.3	D, B, JL

Italicized = secondary result

JW Holo

# 1 - FORM I ANALYSIS DATA SHEET

18111118

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0443-06RE2
		File ID:	12122018-076
Sampled:	12/10/18 13:45	Prepared:	12/12/18 09:26
		Analyzed:	12/12/18 20:56
Solids:	78.61	Preparation:	3050_METALS_PREP
		Dilution:	1
Initial/Final:	2.0847 g / 50 ml		
Batch:	B8L0398	Sequence:	S8L0171
		Calibration:	EL80031
		Instrument:	ICP-AES 7400

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7429-90-5	<del>Aluminum</del>	<del>10000</del>	<del>2.87</del>	<del>6.10</del>	<del>7.63</del>	<del>me JL</del>
7440-36-0	Antimony		0.549	1.22	1.53	U JK
7440-38-2	<del>Arsenic</del>	<del>7.32</del>	<del>0.549</del>	<del>1.22</del>	<del>1.53</del>	<del>me</del>
7440-39-3	Barium	79.1	0.427	1.22	1.53	JH
7440-41-7	Beryllium		0.0610	0.122	0.153	U JL
7440-43-9	Cadmium	0.561	0.0549	0.122	0.153	
7440-70-2	<del>Calcium</del>	<del>2900</del>	<del>3.05</del>	<del>6.10</del>	<del>7.63</del>	<del>me JL</del>
7440-47-3	Chromium	30.0	0.336	1.22	1.53	
7440-48-4	Cobalt	9.51	0.0915	0.305	1.53	
7440-50-8	Copper	36.7	0.592	1.22	1.53	
7439-89-6	<del>Iron</del>	<del>17900</del>	<del>1.12</del>	<del>2.44</del>	<del>3.05</del>	<del>me JL</del>
7439-92-1	Lead	41.9	0.610	1.22	1.53	
7439-95-4	<del>Magnesium</del>	<del>6150</del>	<del>2.07</del>	<del>6.10</del>	<del>7.63</del>	<del>me JL</del>
7439-96-5	Manganese	274	0.305	0.610	1.53	
7440-02-0	Nickel	37.0	0.549	1.22	1.53	
7440-09-7	Potassium	819	2.56	6.10	7.63	me JL
7782-49-2	Selenium		0.549	1.22	1.53	U
7440-22-4	<del>Silver</del>	<del>1.87</del>	<del>0.0976</del>	<del>0.305</del>	<del>1.53</del>	
7440-23-5	Sodium	135	2.75	6.10	7.63	JL
7440-28-0	<del>Thallium</del>	<del>2.12</del>	<del>0.403</del>	<del>1.22</del>	<del>1.53</del>	<del>me</del>
7440-62-2	Vanadium	45.0	0.366	1.22	1.53	
7440-66-6	Zinc	33.4	0.610	1.22	1.53	

Italicized = secondary result

me Holo



**1 - FORM I**  
**ANALYSIS DATA SHEET**

18111118

Laboratory:	Environmental Monitoring and Tech			SDG:	10RB-2nd Set	
Client:	Ecology and Environment, Inc.			Project:	1004530.0470.001.01	
Matrix:	Solid	Laboratory ID:	18L0443-06	File ID:	121718S-028	
Sampled:	12/10/18 13:45	Prepared:	12/17/18 07:35	Analyzed:	12/17/18 12:34	
Solids:	78.61	Preparation:	7471_HG_PREP	Dilution:	1	
Initial/Final:	0.545 g / 50 ml					
Batch:	B8L0513	Sequence:	S8L0231	Calibration:	EL80039	Instrument: Hg Hydra

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7439-97-6	Mercury	0.050	0.023	0.047	0.070	JQ

*Mw Ho-19*

# 1 - FORM I ANALYSIS DATA SHEET

18111119

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0443-07
Sampled:	12/10/18 14:20	Prepared:	12/12/18 09:26
Solids:	83.91	Preparation:	3050_METALS_PREP
Initial/Final:	2.1437 g / 50 ml	Dilution:	100
Batch:	B8L0398	Sequence:	S8L0171
		Calibration:	EL80031
		Instrument:	ICP-AES 7400

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7429-90-5	Aluminum	19800	261	556	695	<i>DM</i>
7440-36-0	<del>Antimony</del>		50.0	111	139	U
7440-38-2	<del>Arsenic</del>		50.0	111	139	U
7440-39-3	<del>Barium</del>	70.3	38.9	111	139	J, <i>DM</i>
7440-41-7	<del>Beryllium</del>		5.56	11.1	13.9	U
7440-43-9	<del>Cadmium</del>		5.00	11.1	13.9	U
7440-70-2	<del>Calcium</del>	4790	278	556	695	<del>D, B</del> <i>DM</i>
7440-47-3	<del>Chromium</del>		30.6	111	139	U
7440-48-4	<del>Cobalt</del>	11.1	8.34	27.8	139	J, <i>DM</i>
7440-50-8	<del>Copper</del>		53.9	111	139	<i>DM</i>
7439-89-6	<del>Iron</del>	19800	102	222	278	<del>D, B</del> <i>DM</i>
7439-92-1	<del>Lead</del>		55.6	111	139	U
7439-95-4	<del>Magnesium</del>	4660	189	556	695	<i>DM</i>
7439-96-5	<del>Manganese</del>	345	27.8	55.6	139	<i>DM</i>
7440-02-0	<del>Nickel</del>		50.0	111	139	U
7440-09-7	<del>Potassium</del>	1160	233	556	695	<del>D, B</del> <i>DM</i>
7782-49-2	<del>Selenium</del>		50.0	111	139	U
7440-22-4	<del>Silver</del>		8.89	27.8	139	U
7440-23-5	<del>Sodium</del>		250	556	695	U
7440-28-0	<del>Thallium</del>		36.7	111	139	U
7440-62-2	<del>Vanadium</del>	48.6	33.4	111	139	J, <i>DM</i>
7440-66-6	<del>Zinc</del>		55.6	111	139	<i>DM</i>

Italicized = secondary result

*DM*

# 1 - FORM I ANALYSIS DATA SHEET

18111119

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0443-07RE1
Sampled:	12/10/18 14:20	Prepared:	12/12/18 09:26
Solids:	83.91	Preparation:	3050_METALS_PREP
Initial/Final:	2.1437 g / 50 ml	Dilution:	10
Batch:	B8L0398	Sequence:	S8L0171
		Calibration:	EL80031
		Instrument:	ICP-AES 7400

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7429-90-5	<del>Aluminum</del>	<del>16300</del>	<del>26.1</del>	<del>55.6</del>	<del>69.5</del>	<del>D, B, P, Q, R, S, T, U, V, W, X, Y, Z</del>
7440-36-0	<del>Antimony</del>		<del>5.00</del>	<del>11.1</del>	<del>13.9</del>	<del>U</del>
7440-38-2	Arsenic	6.87	5.00	11.1	13.9	J, P, Q
7440-39-3	<del>Barium</del>	<del>57.2</del>	<del>3.89</del>	<del>11.1</del>	<del>13.9</del>	<del>P, S, V</del>
7440-41-7	Beryllium		<del>0.556</del>	<del>1.11</del>	<del>1.39</del>	<del>U</del>
7440-43-9	Cadmium	0.750	0.500	1.11	1.39	J, P, Q, R, S, T, U, V, W, X, Y, Z
7440-70-2	Calcium	3940	27.8	55.6	69.5	D, B, P, Q, R, S, T, U, V, W, X, Y, Z
7440-47-3	<del>Chromium</del>	<del>17.9</del>	<del>3.06</del>	<del>11.1</del>	<del>13.9</del>	<del>D, S, V</del>
7440-48-4	Cobalt	8.76	0.834	2.78	13.9	J, P, Q
7440-50-8	Copper	40.7	5.39	11.1	13.9	D
7439-89-6	Iron	16400	10.2	22.2	27.8	D, S, V
7439-92-1	Lead	8.20	5.56	11.1	13.9	J, P, Q, R, S, T, U, V, W, X, Y, Z
7439-95-4	Magnesium	3810	18.9	55.6	69.5	D
7439-96-5	<del>Manganese</del>	<del>283</del>	<del>2.78</del>	<del>5.56</del>	<del>13.9</del>	<del>D</del>
7440-02-0	Nickel	24.8	5.00	11.1	13.9	D, S, V
7440-09-7	Potassium	916	23.3	55.6	69.5	D, B, P
7782-49-2	Selenium		5.00	11.1	13.9	U
7440-22-4	Silver	1.53	0.889	2.78	13.9	J, P, Q
7440-23-5	<del>Sodium</del>	<del>224</del>	<del>25.0</del>	<del>55.6</del>	<del>69.5</del>	<del>D, S, V</del>
7440-28-0	Thallium		3.67	11.1	13.9	U
7440-62-2	<del>Vanadium</del>	<del>38.1</del>	<del>3.34</del>	<del>11.1</del>	<del>13.9</del>	<del>D</del>
7440-66-6	Zinc	38.8	5.56	11.1	13.9	D, S, V

Italicized = secondary result

*MW Hottel*

# 1 - FORM I ANALYSIS DATA SHEET

18111119

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0443-07RE2
		File ID:	12122018-077
Sampled:	12/10/18 14:20	Prepared:	12/12/18 09:26
		Analyzed:	12/12/18 21:01
Solids:	83.91	Preparation:	3050_METALS_PREP
		Dilution:	1
Initial/Final:	2.1437 g / 50 ml		
Batch:	B8L0398	Sequence:	S8L0171
		Calibration:	EL80031
		Instrument:	ICP-AES 7400

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7429-90-5	<del>Aluminum</del>	<del>16700</del>	<del>2.61</del>	<del>5.56</del>	<del>6.95</del>	<del>JK</del>
7440-36-0	Antimony		0.500	1.11	1.39	U JK
7440-38-2	<del>Arsenic</del>	<del>7.79</del>	<del>0.500</del>	<del>1.11</del>	<del>1.39</del>	<del>JK</del>
7440-39-3	Barium	58.5	0.389	1.11	1.39	JK
7440-41-7	Beryllium		0.0556	0.111	0.139	U JL
7440-43-9	Cadmium	0.637	0.0500	0.111	0.139	
7440-70-2	<del>Calcium</del>	<del>3890</del>	<del>2.78</del>	<del>5.56</del>	<del>6.95</del>	<del>JK</del>
7440-47-3	Chromium	19.6	0.306	1.11	1.39	
7440-48-4	Cobalt	8.39	0.0834	0.278	1.39	
7440-50-8	Copper	40.2	0.539	1.11	1.39	
7439-89-6	<del>Iron</del>	<del>14600</del>	<del>1.02</del>	<del>2.22</del>	<del>2.78</del>	<del>JK</del>
7439-92-1	Lead	8.69	0.556	1.11	1.39	
7439-95-4	<del>Magnesium</del>	<del>3800</del>	<del>1.89</del>	<del>5.56</del>	<del>6.95</del>	<del>JK</del>
7439-96-5	Manganese	271	0.278	0.556	1.39	
7440-02-0	Nickel	23.0	0.500	1.11	1.39	
7440-09-7	Potassium	935	2.33	5.56	6.95	JK
7782-49-2	Selenium		0.500	1.11	1.39	U
7440-22-4	<del>Silver</del>	<del>1.54</del>	<del>0.0889</del>	<del>0.278</del>	<del>1.39</del>	<del>JK</del>
7440-23-5	Sodium	233	2.50	5.56	6.95	JK
7440-28-0	<del>Thallium</del>	<del>1.19</del>	<del>0.367</del>	<del>1.11</del>	<del>1.39</del>	<del>JK</del>
7440-62-2	Vanadium	37.7	0.334	1.11	1.39	
7440-66-6	Zinc	38.8	0.556	1.11	1.39	

Italicized = secondary result

*JK*

**1 - FORM I**  
**ANALYSIS DATA SHEET**

18111119

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0443-07
Sampled:	12/10/18 14:20	Prepared:	12/17/18 07:35
Solids:	83.91	Preparation:	7471_HG_PREP
Initial/Final:	0.5329 g / 50 ml	Analyzed:	12/17/18 12:44
Batch:	B8L0513	Dilution:	1
Sequence:	S8L0231	Calibration:	EL80039
Instrument:	Hg Hydra		

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7439-97-6	Mercury	0.195	0.022	0.045	0.067	

*MWH*

# 1 - FORM I ANALYSIS DATA SHEET

18111120

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0443-08
		File ID:	12122018-038
Sampled:	12/10/18 15:00	Prepared:	12/12/18 09:26
		Analyzed:	12/12/18 18:20
Solids:	89.88	Preparation:	3050_METALS_PREP
		Dilution:	100
Initial/Final:	2.0122 g / 50 ml		
Batch:	B8L0398	Sequence:	S8L0171
		Calibration:	EL80031
		Instrument:	ICP-AES 7400

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7429-90-5	Aluminum	13600	260	553	691	<i>DM</i>
7440-36-0	Antimony		49.8	111	138	U
7440-38-2	Arsenic		49.8	111	138	U
7440-39-3	Barium	131	38.7	111	138	<i>J, DMQ</i>
7440-41-7	Beryllium		5.53	11.1	13.8	U
7440-43-9	Cadmium	85.7	4.98	11.1	13.8	<i>DMU</i>
7440-70-2	Calcium	6380	276	553	691	<i>D, DMU</i>
7440-47-3	Chromium	49.8	30.4	111	138	<i>J, D Q</i>
7440-48-4	Cobalt	13.3	8.29	27.6	138	<i>J, D</i>
7440-50-8	Copper	104	53.6	111	138	<i>J, D</i>
7439-89-6	Iron	29100	102	221	276	<i>D</i>
7439-92-1	Lead	194	55.3	111	138	<i>D</i>
7439-95-4	Magnesium	8690	188	553	691	<i>D</i>
7439-96-5	Manganese	380	27.6	55.3	138	<i>D, DMU</i>
7440-02-0	Nickel		49.8	111	138	U
7440-09-7	Potassium	838	232	553	691	<i>D, DMU</i>
7782-49-2	Selenium		49.8	111	138	U
7440-22-4	Silver		8.85	27.6	138	U
7440-23-5	Sodium	484	249	553	691	<i>J, DMQ</i>
7440-28-0	Thallium		36.5	111	138	U
7440-62-2	Vanadium	52.8	33.2	111	138	<i>J, DMQ</i>
7440-66-6	Zinc	268	55.3	111	138	<i>D</i>

Italicized = secondary result

*MWHofa*

# 1 - FORM I ANALYSIS DATA SHEET

18111120

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0443-08RE1
		File ID:	12122018-056
Sampled:	12/10/18 15:00	Prepared:	12/12/18 09:26
		Analyzed:	12/12/18 19:33
Solids:	89.88	Preparation:	3050_METALS_PREP
		Dilution:	10
Initial/Final:	2.0122 g / 50 ml		
Batch:	B8L0398	Sequence:	S8L0171
		Calibration:	EL80031
		Instrument:	ICP-AES 7400

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7429-90-5	Aluminum	12200	26.0	55.3	69.1	<i>DMV</i>
7440-36-0	Antimony	<i>4.98</i>	<i>4.98</i>	<i>11.1</i>	<i>13.8</i>	<i>U</i>
7440-38-2	Arsenic	8.93	4.98	11.1	13.8	<i>J. AuQ</i>
7440-39-3	Barium	<i>116</i>	3.87	11.1	13.8	<i>DMV</i>
7440-41-7	Beryllium		0.553	1.11	1.38	<i>U</i>
7440-43-9	Cadmium	76.4	0.498	1.11	1.38	<i>DMV</i>
7440-70-2	Calcium	5650	27.6	55.3	69.1	<i>D. B. M. JL</i>
7440-47-3	Chromium	42.1	3.04	11.1	13.8	<i>DMV</i>
7440-48-4	Cobalt	12.8	0.829	2.76	13.8	<i>J. AuQ</i>
7440-50-8	Copper	97.8	5.36	11.1	13.8	<i>DMV</i>
7439-89-6	Iron	26300	10.2	22.1	27.6	<i>D. B. M. JL</i>
7439-92-1	Lead	188	5.53	11.1	13.8	<i>DMV</i>
7439-95-4	Magnesium	7760	18.8	55.3	69.1	<i>D</i>
7439-96-5	Manganese	334	2.76	5.53	13.8	<i>D</i>
7440-02-0	Nickel	29.2	4.98	11.1	13.8	<i>DMV</i>
7440-09-7	Potassium	754	23.2	55.3	69.1	<i>D. B. M. JL</i>
7782-49-2	Selenium		4.98	11.1	13.8	<i>U</i>
7440-22-4	Silver	2.68	0.885	2.76	13.8	<i>J. AuQ</i>
7440-23-5	Sodium	459	24.9	55.3	69.1	<i>DMV</i>
7440-28-0	Thallium		3.65	11.1	13.8	<i>U</i>
7440-62-2	Vanadium	45.7	3.32	11.1	13.8	<i>D</i>
7440-66-6	Zinc	241	5.53	11.1	13.8	<i>DMV</i>

Italicized = secondary result

*MW H019*

# 1 - FORM I ANALYSIS DATA SHEET

18111120

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0443-08RE2
Sampled:	12/10/18 15:00	Prepared:	12/12/18 09:26
Solids:	89.88	Preparation:	3050_METALS_PREP
Initial/Final:	2.0122 g / 50 ml	Dilution:	1
Batch:	B8L0398	Sequence:	S8L0171
		Calibration:	EL80031
		Instrument:	ICP-AES 7400

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7429-90-5	<del>Aluminum</del>	<del>12700</del>	<del>2.60</del>	<del>5.53</del>	<del>6.91</del>	<del>FW JL</del>
7440-36-0	Antimony		0.498	1.11	1.38	U JL
7440-38-2	<del>Arsenic</del>	<del>8.59</del>	<del>0.498</del>	<del>1.11</del>	<del>1.38</del>	<del>FW JL</del>
7440-39-3	Barium	119	0.387	1.11	1.38	JH
7440-41-7	Beryllium		0.0553	0.111	0.138	U JL
7440-43-9	Cadmium	69.9	0.0498	0.111	0.138	
7440-70-2	<del>Calcium</del>	<del>5450</del>	<del>2.76</del>	<del>5.53</del>	<del>6.91</del>	<del>B FW JL</del>
7440-47-3	Chromium	45.5	0.304	1.11	1.38	
7440-48-4	Cobalt	12.1	0.0829	0.276	1.38	
7440-50-8	Copper	95.6	0.536	1.11	1.38	
7439-89-6	<del>Iron</del>	<del>21700</del>	<del>1.02</del>	<del>2.21</del>	<del>2.76</del>	<del>FW JL</del>
7439-92-1	Lead	176	0.553	1.11	1.38	
7439-95-4	<del>Magnesium</del>	<del>7490</del>	<del>1.88</del>	<del>5.53</del>	<del>6.91</del>	<del>FW JL</del>
7439-96-5	Manganese	318	0.276	0.553	1.38	
7440-02-0	Nickel	27.4	0.498	1.11	1.38	
7440-09-7	Potassium	772	2.32	5.53	6.91	B FW JL
7782-49-2	Selenium	5.82	0.498	1.11	1.38	
7440-22-4	<del>Silver</del>	<del>2.11</del>	<del>0.0885</del>	<del>0.276</del>	<del>1.38</del>	<del>FW JL</del>
7440-23-5	Sodium	480	2.49	5.53	6.91	JL
7440-28-0	<del>Thallium</del>	<del>1.86</del>	<del>0.365</del>	<del>1.11</del>	<del>1.38</del>	<del>FW JL</del>
7440-62-2	Vanadium	44.8	0.332	1.11	1.38	
7440-66-6	Zinc	240	0.553	1.11	1.38	

Italicized = secondary result

MW H-19



**1 - FORM I**  
**ANALYSIS DATA SHEET**

18111120

Laboratory:	Environmental Monitoring and Tech			SDG:	10RB-2nd Set	
Client:	Ecology and Environment, Inc.			Project:	1004530.0470.001.01	
Matrix:	Solid	Laboratory ID:	18L0443-08	File ID:	121718S-032	
Sampled:	12/10/18 15:00	Prepared:	12/17/18 07:35	Analyzed:	12/17/18 12:46	
Solids:	89.88	Preparation:	7471_HG_PREP	Dilution:	1	
Initial/Final:	0.5462 g / 50 ml					
Batch:	B8L0513	Sequence:	S8L0231	Calibration:	EL80039	Instrument: Hg Hydra

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7439-97-6	Mercury	0.049	0.020	0.041	0.061	J Q

*MutH019*

# 1 - FORM I ANALYSIS DATA SHEET

18111121

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0443-09
Sampled:	12/10/18 15:50	Prepared:	12/12/18 09:26
Solids:	80.80	Preparation:	3050_METALS_PREP
Initial/Final:	2.1727 g / 50 ml	Dilution:	100
Batch:	B8L0398	Sequence:	S8L0171
		Calibration:	EL80031
		Instrument:	ICP-AES 7400

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7429-90-5	<i>Aluminum</i>	10400	268	570	712	<i>D, B, m</i>
7440-36-0	<i>Antimony</i>		51.3	114	142	U
7440-38-2	<i>Arsenic</i>		51.3	114	142	<i>U, m</i>
7440-39-3	<i>Barium</i>	64.9	39.9	114	142	<i>J, D, m, Q</i>
7440-41-7	<i>Beryllium</i>		5.70	11.4	14.2	U
7440-43-9	<i>Cadmium</i>		5.13	11.4	14.2	U
7440-70-2	<i>Calcium</i>	5840	285	570	712	<i>D, B, m</i>
7440-47-3	<i>Chromium</i>	111	31.3	114	142	<i>J, D, Q</i>
7440-48-4	<i>Cobalt</i>	9.68	8.54	28.5	142	<i>J, D</i>
7440-50-8	<i>Copper</i>	123	55.3	114	142	<i>J, D, m, JL</i>
7439-89-6	<i>Iron</i>	18100	105	228	285	<i>D</i>
7439-92-1	<i>Lead</i>	148	57.0	114	142	<i>D</i>
7439-95-4	<i>Magnesium</i>	5330	194	570	712	<i>D</i>
7439-96-5	<i>Manganese</i>	244	28.5	57.0	142	<i>D</i>
7440-02-0	<i>Nickel</i>	166	51.3	114	142	<i>D, m</i>
7440-09-7	<i>Potassium</i>	593	239	570	712	<i>J, D, B, m, Q</i>
7782-49-2	<i>Selenium</i>		51.3	114	142	U
7440-22-4	<i>Silver</i>		9.11	28.5	142	U
7440-23-5	<i>Sodium</i>		256	570	712	U
7440-28-0	<i>Thallium</i>		37.6	114	142	U
7440-62-2	<i>Vanadium</i>		34.2	114	142	U
7440-66-6	<i>Zinc</i>	158	57.0	114	142	<i>D, m</i>

Italicized = secondary result

*mmf 10/18*

# 1 - FORM I ANALYSIS DATA SHEET

18111121

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0443-09RE1
Sampled:	12/10/18 15:50	Prepared:	12/12/18 09:26
Solids:	80.80	Preparation:	3050_METALS_PREP
Initial/Final:	2.1727 g / 50 ml	Dilution:	10
Batch:	B8L0398	Sequence:	S8L0171
		Calibration:	EL80031
		Instrument:	ICP-AES 7400

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7429-90-5	Aluminum	8750	26.8	57.0	71.2	<i>DN</i>
7440-36-0	<i>Antimony</i>		5.13	11.4	14.2	<i>U</i>
7440-38-2	Arsenic	6.98	5.13	11.4	14.2	<i>J, DN Q</i>
7440-39-3	<i>Barium</i>	54.1	3.99	11.4	14.2	<i>DN</i>
7440-41-7	Beryllium		0.570	1.14	1.42	<i>U</i>
7440-43-9	Cadmium	1.45	0.513	1.14	1.42	<i>DN</i>
7440-70-2	Calcium	4870	28.5	57.0	71.2	<i>D, B, DN, TL</i>
7440-47-3	<i>Chromium</i>	94.4	3.13	11.4	14.2	<i>DN</i>
7440-48-4	Cobalt	7.52	0.854	2.85	14.2	<i>J, DN Q</i>
7440-50-8	Copper	104	5.53	11.4	14.2	<i>D</i>
7439-89-6	Iron	15300	10.5	22.8	28.5	<i>D</i>
7439-92-1	Lead	128	5.70	11.4	14.2	<i>D, DN</i>
7439-95-4	Magnesium	4380	19.4	57.0	71.2	<i>D</i>
7439-96-5	<i>Manganese</i>	203	2.85	5.70	14.2	<i>D</i>
7440-02-0	Nickel	138	5.13	11.4	14.2	<i>DN</i>
7440-09-7	Potassium	515	23.9	57.0	71.2	<i>D, B, DN</i>
7782-49-2	Selenium		5.13	11.4	14.2	<i>U</i>
7440-22-4	Silver	1.85	0.911	2.85	14.2	<i>J, DN Q</i>
7440-23-5	<i>Sodium</i>	167	25.6	57.0	71.2	<i>DN</i>
7440-28-0	Thallium		3.76	11.4	14.2	<i>U</i>
7440-62-2	<i>Vanadium</i>	26.1	3.42	11.4	14.2	<i>D</i>
7440-66-6	Zinc	134	5.70	11.4	14.2	<i>D</i>

Italicized = secondary result

*MW H219*

# 1 - FORM I

## ANALYSIS DATA SHEET

18111121

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0443-09RE2
File ID:	12122018-079		
Sampled:	12/10/18 15:50	Prepared:	12/12/18 09:26
Analyzed:	12/12/18 21:09		
Solids:	80.80	Preparation:	3050_METALS_PREP
Dilution:	1		
Initial/Final:	2.1727 g / 50 ml		
Batch:	B8L0398	Sequence:	S8L0171
Calibration:	EL80031	Instrument:	ICP-AES 7400

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7429-90-5	<i>Aluminum</i>	<del>9240</del>	<del>2.68</del>	<del>5.70</del>	<del>7.12</del>	<del>E</del> <i>Me</i>
7440-36-0	Antimony		0.513	1.14	1.42	U <i>JK</i>
7440-38-2	<i>Arsenic</i>	<del>7.06</del>	<del>0.513</del>	<del>1.14</del>	<del>1.42</del>	<del>Me</del>
7440-39-3	Barium	56.4	0.399	1.14	1.42	<i>JH</i>
7440-41-7	Beryllium		0.0570	0.114	0.142	U <i>JL</i>
7440-43-9	Cadmium	1.32	0.0513	0.114	0.142	
7440-70-2	<i>Calcium</i>	<del>4900</del>	<del>2.85</del>	<del>5.70</del>	<del>7.12</del>	<del>B, E</del> <i>Me</i>
7440-47-3	Chromium	96.6	0.313	1.14	1.42	
7440-48-4	Cobalt	7.29	0.0854	0.285	1.42	
7440-50-8	Copper	107	0.553	1.14	1.42	
7439-89-6	<i>Iron</i>	<del>14000</del>	<del>1.05</del>	<del>2.28</del>	<del>2.85</del>	<del>E</del> <i>Me</i>
7439-92-1	Lead	123	0.570	1.14	1.42	
7439-96-5	Manganese	198	0.285	0.570	1.42	
7440-02-0	<i>Nickel</i>	<del>132</del>	<del>0.513</del>	<del>1.14</del>	<del>1.42</del>	
7440-09-7	Potassium	547	2.39	5.70	7.12	<i>JL</i>
7782-49-2	Selenium		0.513	1.14	1.42	U
7440-22-4	<i>Silver</i>	<del>1.49</del>	<del>0.0911</del>	<del>0.285</del>	<del>1.42</del>	<del>Me</del>
7440-23-5	Sodium	181	2.56	5.70	7.12	<i>JL</i>
7440-28-0	<i>Thallium</i>	<del>1.08</del>	<del>0.376</del>	<del>1.14</del>	<del>1.42</del>	<del>JG</del> <i>Me</i>
7440-62-2	Vanadium	26.3	0.342	1.14	1.42	
7440-66-6	Zinc	134	0.570	1.14	1.42	

Italicized = secondary result

*Me Ho-19*

**1 - FORM I**  
**ANALYSIS DATA SHEET**

18111121

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set				
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01				
Matrix:	Solid	Laboratory ID:	18L0443-09	File ID:	121718S-033		
Sampled:	12/10/18 15:50	Prepared:	12/17/18 07:35	Analyzed:	12/17/18 12:48		
Solids:	80.80	Preparation:	7471_HG_PREP	Dilution:	1		
Initial/Final:	0.5083 g / 50 ml						
Batch:	B8L0513	Sequence:	S8L0231	Calibration:	EL80039	Instrument:	Hg Hydra

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7439-97-6	Mercury	0.044	0.024	0.049	0.073	J Q

*M. Hoff*

# 1 - FORM I ANALYSIS DATA SHEET

18111122

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0443-01
		File ID:	12122018-027
Sampled:	12/11/18 09:40	Prepared:	12/12/18 09:26
		Analyzed:	12/12/18 17:36
Solids:	57.73	Preparation:	3050_METALS_PREP
		Dilution:	100
Initial/Final:	2.0221 g / 50 ml		
Batch:	B8L0398	Sequence:	S8L0171
		Calibration:	EL80031
		Instrument:	ICP-AES 7400

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7429-90-5	<i>Aluminum</i>	7100	403	857	1070	<del>DN</del>
7440-36-0	<i>Antimony</i>		77.1	171	214	U
7440-38-2	<i>Arsenic</i>		77.1	171	214	U
7440-39-3	<i>Barium</i>		60.0	171	214	U
7440-41-7	<i>Beryllium</i>		8.57	17.1	21.4	U
7440-43-9	<i>Cadmium</i>		7.71	17.1	21.4	U
7440-70-2	<i>Calcium</i>	10400	428	857	1070	<del>DN</del>
7440-47-3	<i>Chromium</i>		47.1	171	214	U
7440-48-4	<i>Cobalt</i>		12.8	42.8	214	U
7440-50-8	<i>Copper</i>		83.1	171	214	U
7439-89-6	<i>Iron</i>	9980	158	343	428	<del>DN</del>
7439-92-1	<i>Lead</i>		85.7	171	214	U
7439-95-4	<i>Magnesium</i>	2640	291	857	1070	<del>DN</del>
7439-96-5	<i>Manganese</i>	239	42.8	85.7	214	<del>DN</del>
7440-02-0	<i>Nickel</i>		77.1	171	214	U
7440-09-7	<i>Potassium</i>	1530	360	857	1070	<del>DN</del>
7782-49-2	<i>Selenium</i>		77.1	171	214	U
7440-22-4	<i>Silver</i>		13.7	42.8	214	U
7440-23-5	<i>Sodium</i>		385	857	1070	U
7440-28-0	<i>Thallium</i>		56.5	171	214	U
7440-62-2	<i>Vanadium</i>		51.4	171	214	U
7440-66-6	<i>Zinc</i>	223	85.7	171	214	<del>DN</del>

Italicized = secondary result

*MW Hoke*

# 1 - FORM I ANALYSIS DATA SHEET

18111122

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0443-01RE1
Sampled:	12/11/18 09:40	Prepared:	12/12/18 09:26
Solids:	57.73	Preparation:	3050_METALS_PREP
Initial/Final:	2.0221 g / 50 ml	Dilution:	10
Batch:	B8L0398	Sequence:	S8L0171
		Calibration:	EL80031
		Instrument:	ICP-AES 7400

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7429-90-5	Aluminum	6900	40.3	85.7	107	<del>D</del> <i>u</i>
7440-36-0	<del>Antimony</del>	<del>7.71</del>	<del>17.1</del>	<del>21.4</del>	<del>21.4</del>	<del>U</del> <i>u</i>
7440-38-2	Arsenic	7.84	7.71	17.1	21.4	<del>J, D</del> <i>Q</i>
7440-39-3	<del>Barium</del>	<del>50.0</del>	<del>6.00</del>	<del>17.1</del>	<del>21.4</del>	<del>D</del> <i>u</i>
7440-41-7	Beryllium	<del>0.857</del>	<del>1.71</del>	<del>2.14</del>	<del>2.14</del>	<del>U</del> <i>u</i>
7440-43-9	<del>Cadmium</del>	<del>0.814</del>	<del>0.771</del>	<del>1.71</del>	<del>2.14</del>	<del>J, D</del> <i>Q</i>
7440-70-2	Calcium	10200	42.8	85.7	107	<del>D, B</del> <i>u</i>
7440-47-3	<del>Chromium</del>	<del>15.4</del>	<del>4.71</del>	<del>17.1</del>	<del>21.4</del>	<del>J, D</del> <i>Q</i>
7440-48-4	Cobalt	4.24	1.28	4.28	21.4	<del>J, D</del> <i>Q</i>
7440-50-8	Copper	48.8	8.31	17.1	21.4	<del>D</del> <i>u</i>
7439-89-6	Iron	9790	15.8	34.3	42.8	<del>D</del> <i>u</i>
7439-92-1	<del>Lead</del>	<del>34.0</del>	<del>8.57</del>	<del>17.1</del>	<del>21.4</del>	<del>D</del> <i>u</i>
7439-95-4	Magnesium	2520	29.1	85.7	107	<del>D</del> <i>u</i>
7439-96-5	<del>Manganese</del>	<del>234</del>	<del>4.28</del>	<del>8.57</del>	<del>21.4</del>	<del>D</del> <i>u</i>
7440-02-0	Nickel	17.2	7.71	17.1	21.4	<del>J, D</del> <i>Q</i>
7440-09-7	Potassium	1230	36.0	85.7	107	<del>D, B</del> <i>u</i>
7782-49-2	Selenium		7.71	17.1	21.4	<del>U</del> <i>u</i>
7440-22-4	Silver		1.37	4.28	21.4	<del>U</del> <i>u</i>
7440-23-5	<del>Sodium</del>	<del>229</del>	<del>38.5</del>	<del>85.7</del>	<del>107</del>	<del>D</del> <i>u</i>
7440-28-0	Thallium		5.65	17.1	21.4	<del>U</del> <i>u</i>
7440-62-2	<del>Vanadium</del>	<del>22.2</del>	<del>5.14</del>	<del>17.1</del>	<del>21.4</del>	<del>D</del> <i>u</i>
7440-66-6	Zinc	217	8.57	17.1	21.4	<del>D</del> <i>u</i>

Italicized = secondary result

*John Hottel*

# 1 - FORM I ANALYSIS DATA SHEET

18111122

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0443-01RE2
Sampled:	12/11/18 09:40	Prepared:	12/12/18 09:26
Solids:	57.73	Preparation:	3050_METALS_PREP
Initial/Final:	2.0221 g / 50 ml	Dilution:	1
Batch:	B8L0398	Sequence:	S8L0171
		Calibration:	EL80031
		Instrument:	ICP-AES 7400

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7429-90-5	<del>Aluminum</del>	<del>7380</del>	<del>4.03</del>	<del>8.57</del>	<del>10.7</del>	<del>JK JL</del>
7440-36-0	Antimony		0.771	1.71	2.14	U OK
7440-38-2	<del>Arsenic</del>	<del>8.10</del>	<del>0.771</del>	<del>1.71</del>	<del>2.14</del>	<del>JK</del>
7440-39-3	Barium	52.4	0.600	1.71	2.14	JK
7440-41-7	Beryllium		0.0857	0.171	0.214	U JL
7440-43-9	Cadmium	0.668	0.0771	0.171	0.214	
7440-70-2	<del>Calcium</del>	<del>10300</del>	<del>4.28</del>	<del>8.57</del>	<del>10.7</del>	<del>B, JK JL</del>
7440-47-3	Chromium	15.8	0.471	1.71	2.14	
7440-48-4	Cobalt	4.34	0.128	0.428	2.14	
7440-50-8	Copper	52.0	0.831	1.71	2.14	
7439-89-6	<del>Iron</del>	<del>9550</del>	<del>1.58</del>	<del>3.43</del>	<del>4.28</del>	<del>JK</del>
7439-92-1	Lead	35.0	0.857	1.71	2.14	
7439-95-4	<del>Magnesium</del>	<del>2630</del>	<del>2.91</del>	<del>8.57</del>	<del>10.7</del>	<del>JK JL</del>
7439-96-5	Manganese	230	0.428	0.857	2.14	
7440-02-0	Nickel	16.5	0.771	1.71	2.14	
7440-09-7	Potassium	1290	3.60	8.57	10.7	JK JL
7782-49-2	Selenium		0.771	1.71	2.14	U
7440-22-4	<del>Silver</del>	<del>1.04</del>	<del>0.137</del>	<del>0.428</del>	<del>2.14</del>	<del>JK</del>
7440-23-5	Sodium	244	3.85	8.57	10.7	JK
7440-28-0	<del>Thallium</del>	<del>1.34</del>	<del>0.565</del>	<del>1.71</del>	<del>2.14</del>	<del>JK</del>
7440-62-2	Vanadium	22.3	0.514	1.71	2.14	
7440-66-6	Zinc	218	0.857	1.71	2.14	

Italicized = secondary result

*M. H. H.*



**1 - FORM I**  
**ANALYSIS DATA SHEET**

18111122

Laboratory:	Environmental Monitoring and Tech			SDG:	10RB-2nd Set	
Client:	Ecology and Environment, Inc.			Project:	1004530.0470.001.01	
Matrix:	Solid	Laboratory ID:	18L0443-01	File ID:	121718S-023	
Sampled:	12/11/18 09:40	Prepared:	12/17/18 07:35	Analyzed:	12/17/18 11:48	
Solids:	57.73	Preparation:	7471_HG_PREP	Dilution:	1	
Initial/Final:	0.5316 g / 50 ml					
Batch:	B8L0513	Sequence:	S8L0231	Calibration:	EL80039	Instrument: Hg Hydra

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7439-97-6	Mercury	0.125	0.033	0.065	0.098	

*MW Hota*

# 1 - FORM I ANALYSIS DATA SHEET

18111123

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0443-02
Sampled:	12/11/18 09:50	Prepared:	12/12/18 09:26
Solids:	54.82	Preparation:	3050_METALS_PREP
Initial/Final:	2.0034 g / 50 ml	Dilution:	100
Batch:	B8L0398	Sequence:	S8L0171
		Calibration:	EL80031
		Instrument:	ICP-AES 7400

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7429-90-5	Aluminum	18900	428	911	1140	<del>Am</del>
7440-36-0	Antimony		82.0	182	228	U
7440-38-2	Arsenic		82.0	182	228	U
7440-39-3	Barium	112	63.7	182	228	J, D <del>Am</del> Q
7440-41-7	Beryllium		9.11	18.2	22.8	U
7440-43-9	Cadmium		8.20	18.2	22.8	U
7440-70-2	Calcium	13400	455	911	1140	<del>D, B</del> <del>Am</del>
7440-47-3	Chromium		50.1	182	228	U
7440-48-4	Cobalt	15.5	13.7	45.5	228	J, D Q
7440-50-8	Copper	121	88.3	182	228	J, D <del>Am</del> Q
7439-89-6	Iron	29600	168	364	455	<del>Am</del> JL
7439-92-1	Lead	94.7	91.1	182	228	J, D <del>Am</del> Q
7439-95-4	Magnesium	8750	310	911	1140	<del>D</del>
7439-96-5	Manganese	525	45.5	91.1	228	<del>Am</del>
7440-02-0	Nickel		82.0	182	228	U
7440-09-7	Potassium	1700	382	911	1140	<del>D, B</del> <del>Am</del>
7782-49-2	Selenium		82.0	182	228	U
7440-22-4	Silver		14.6	45.5	228	U
7440-23-5	Sodium	634	410	911	1140	J, D <del>Am</del> Q
7440-28-0	Thallium		60.1	182	228	U
7440-62-2	Vanadium	69.7	54.6	182	228	J, D Q
7440-66-6	Zinc	211	91.1	182	228	J, D <del>Am</del> Q

Italicized = secondary result

*Mr. HOF*

# 1 - FORM I ANALYSIS DATA SHEET

18111123

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0443-02RE1
		File ID:	12122018-050
Sampled:	12/11/18 09:50	Prepared:	12/12/18 09:26
		Analyzed:	12/12/18 19:09
Solids:	54.82	Preparation:	3050_METALS_PREP
		Dilution:	10
Initial/Final:	2.0034 g / 50 ml		
Batch:	B8L0398	Sequence:	S8L0171
		Calibration:	EL80031
		Instrument:	ICP-AES 7400

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7429-90-5	Aluminum	18100	42.8	91.1	114	<i>DM</i>
7440-36-0	<del>Antimony</del>	<del>8.20</del>	<del>18.2</del>	<del>22.8</del>	<del>22.8</del>	<del>U</del>
7440-38-2	Arsenic	16.9	8.20	18.2	22.8	<i>J, D, DM, Q</i>
7440-39-3	<del>Barium</del>	<del>106</del>	<del>6.37</del>	<del>18.2</del>	<del>22.8</del>	<del>DM</del>
7440-41-7	Beryllium	<del>0.941</del>	<del>1.82</del>	<del>2.28</del>	<del>2.28</del>	<del>U</del>
7440-43-9	Cadmium	1.87	0.820	1.82	2.28	<i>J, DM, Q</i>
7440-70-2	Calcium	12600	45.5	91.1	114	<del>D, B, DM, JL</del>
7440-47-3	<del>Chromium</del>	<del>35.1</del>	<del>5.01</del>	<del>18.2</del>	<del>22.8</del>	<del>DM</del>
7440-48-4	Cobalt	12.6	1.37	4.55	22.8	<i>J, DM, Q</i>
7440-50-8	Copper	119	8.83	18.2	22.8	<del>D</del>
7439-89-6	Iron	28400	16.8	36.4	45.5	<del>D</del>
7439-92-1	Lead	83.6	9.11	18.2	22.8	<del>D, DM</del>
7439-95-4	Magnesium	8200	31.0	91.1	114	<del>D</del>
7439-96-5	<del>Manganese</del>	<del>496</del>	<del>4.55</del>	<del>9.11</del>	<del>22.8</del>	<del>D</del>
7440-02-0	Nickel	39.5	8.20	18.2	22.8	<del>DM</del>
7440-09-7	Potassium	1620	38.2	91.1	114	<del>D, B, DM</del>
7782-49-2	Selenium	<del>8.20</del>	<del>18.2</del>	<del>22.8</del>	<del>22.8</del>	<del>U</del>
7440-22-4	Silver	3.23	1.46	4.55	22.8	<i>J, DM, Q</i>
7440-23-5	<del>Sodium</del>	<del>675</del>	<del>41.0</del>	<del>91.1</del>	<del>114</del>	<del>DM</del>
7440-28-0	Thallium	<del>6.01</del>	<del>18.2</del>	<del>22.8</del>	<del>22.8</del>	<del>U</del>
7440-62-2	<del>Vanadium</del>	<del>63.5</del>	<del>5.46</del>	<del>18.2</del>	<del>22.8</del>	<del>D</del>
7440-66-6	Zinc	199	9.11	18.2	22.8	<del>D</del>

Italicized = secondary result

*Jan 10-19*

# 1 - FORM I ANALYSIS DATA SHEET

18111123

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0443-02RE2
		File ID:	12122018-068
Sampled:	12/11/18 09:50	Prepared:	12/12/18 09:26
		Analyzed:	12/12/18 20:22
Solids:	54.82	Preparation:	3050_METALS_PREP
		Dilution:	1
Initial/Final:	2.0034 g / 50 ml		
Batch:	B8L0398	Sequence:	S8L0171
		Calibration:	EL80031
		Instrument:	ICP-AES 7400

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7429-90-5	<i>Aluminum</i>	18800	4.28	9.11	11.4	Am JH
7440-36-0	Antimony		0.820	1.82	2.28	U JK
7440-38-2	<i>Arsenic</i>	13.9	0.820	1.82	2.28	JK
7440-39-3	Barium	109	0.637	1.82	2.28	JH
7440-41-7	Beryllium		0.0911	0.182	0.228	U JL
7440-43-9	Cadmium	1.72	0.0820	0.182	0.228	
7440-70-2	<i>Calcium</i>	12200	4.55	9.11	11.4	B, JH
7440-47-3	Chromium	37.4	0.501	1.82	2.28	
7440-48-4	Cobalt	12.2	0.137	0.455	2.28	
7440-50-8	Copper	119	0.883	1.82	2.28	
7439-89-6	<i>Iron</i>	24900	1.68	3.64	4.55	JH
7439-92-1	Lead	82.1	0.911	1.82	2.28	
7439-95-4	<i>Magnesium</i>	8090	3.10	9.11	11.4	JH
7439-96-5	Manganese	471	0.455	0.911	2.28	
7440-02-0	Nickel	36.9	0.820	1.82	2.28	
7440-09-7	Potassium	1660	3.82	9.11	11.4	B, JH
7782-49-2	Selenium		0.820	1.82	2.28	U
7440-22-4	<i>Silver</i>	2.73	0.146	0.455	2.28	JK
7440-23-5	Sodium	704	4.10	9.11	11.4	JL
7440-28-0	<i>Thallium</i>	2.12	0.601	1.82	2.28	J, Q
7440-62-2	Vanadium	62.1	0.546	1.82	2.28	
7440-66-6	Zinc	196	0.911	1.82	2.28	

Italicized = secondary result

mm/10-19

**1 - FORM I**  
**ANALYSIS DATA SHEET**

18111123

Laboratory:	Environmental Monitoring and Tech			SDG:	10RB-2nd Set	
Client:	Ecology and Environment, Inc.			Project:	1004530.0470.001.01	
Matrix:	Solid	Laboratory ID:	18L0443-02	File ID:	121718S-024	
Sampled:	12/11/18 09:50	Prepared:	12/17/18 07:35	Analyzed:	12/17/18 12:06	
Solids:	54.82	Preparation:	7471_HG_PREP	Dilution:	1	
Initial/Final:	0.5104 g / 50 ml					
Batch:	B8L0513	Sequence:	S8L0231	Calibration:	EL80039	Instrument: Hg Hydra

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7439-97-6	Mercury	0.113	0.036	0.071	0.107	

*mw* 10-19

# 1 - FORM I ANALYSIS DATA SHEET

18111124

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0443-03
Sampled:	12/11/18 11:30	Prepared:	12/12/18 09:26
Solids:	67.31	Preparation:	3050_METALS_PREP
Initial/Final:	2.1726 g / 50 ml	Dilution:	100
Batch:	B8L0398	Sequence:	S8L0171
		Calibration:	EL80031
		Instrument:	ICP-AES 7400

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7429-90-5	Aluminum	7270	321	684	855	<i>me</i>
7440-36-0	Antimony		61.5	137	171	U
7440-38-2	Arsenic		61.5	137	171	U
7440-39-3	Barium	50.9	47.9	137	171	J, <i>me</i>
7440-41-7	Beryllium		6.84	13.7	17.1	U
7440-43-9	Cadmium		6.15	13.7	17.1	U
7440-70-2	Calcium	9580	342	684	855	<i>D, B me</i>
7440-47-3	Chromium		37.6	137	171	U
7440-48-4	Cobalt		10.3	34.2	171	U
7440-50-8	Copper	70.8	66.3	137	171	J, <i>me</i>
7439-89-6	Iron	12900	126	274	342	<i>me</i>
7439-92-1	Lead		68.4	137	171	U
7439-95-4	Magnesium	2760	232	684	855	<i>D</i>
7439-96-5	Manganese	276	34.2	68.4	171	<i>D me</i>
7440-02-0	Nickel		61.5	137	171	U
7440-09-7	Potassium	1330	287	684	855	<i>D, B me</i>
7782-49-2	Selenium		61.5	137	171	U
7440-22-4	Silver		10.9	34.2	171	U
7440-23-5	Sodium		308	684	855	U
7440-28-0	Thallium		45.1	137	171	U
7440-62-2	Vanadium		41.0	137	171	U
7440-66-6	Zinc	163	68.4	137	171	J, <i>me</i>

Italicized = secondary result

*Jan 10/19*

# 1 - FORM I ANALYSIS DATA SHEET

18111124

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0443-03RE1
Sampled:	12/11/18 11:30	Prepared:	12/12/18 09:26
Solids:	67.31	Preparation:	3050_METALS_PREP
Initial/Final:	2.1726 g / 50 ml	Dilution:	10
Batch:	B8L0398	Sequence:	S8L0171
		Calibration:	EL80031
		Instrument:	ICP-AES 7400

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7429-90-5	Aluminum	7300	32.1	68.4	85.5	<i>DM</i>
7440-36-0	<i>Antimony</i>		<i>6.15</i>	<i>13.7</i>	<i>17.1</i>	<i>U</i>
7440-38-2	Arsenic	11.9	6.15	13.7	17.1	<i>J, DM Q</i>
7440-39-3	<i>Barium</i>	51.2	4.79	13.7	17.1	<i>DM</i>
7440-41-7	Beryllium		<i>0.684</i>	<i>1.37</i>	<i>1.71</i>	<i>U</i>
7440-43-9	Cadmium	0.718	0.615	1.37	1.71	<i>J, DM Q</i>
7440-70-2	Calcium	9660	34.2	68.4	85.5	<i>D, B, DM JL</i>
7440-47-3	<i>Chromium</i>	18.5	3.76	13.7	17.1	<i>DM</i>
7440-48-4	Cobalt	5.50	1.03	3.42	17.1	<i>J, DM Q</i>
7440-50-8	Copper	73.2	6.63	13.7	17.1	<i>DM</i>
7439-89-6	Iron	13000	12.6	27.4	34.2	<i>D JL</i>
7439-92-1	<i>Lead</i>	33.0	<i>6.84</i>	<i>13.7</i>	<i>17.1</i>	<i>D</i>
7439-95-4	Magnesium	2740	23.2	68.4	85.5	<i>D</i>
7439-96-5	<i>Manganese</i>	277	3.42	6.84	17.1	<i>D</i>
7440-02-0	Nickel	16.9	6.15	13.7	17.1	<i>J, DM Q</i>
7440-09-7	Potassium	1290	28.7	68.4	85.5	<i>D, B, DM</i>
7782-49-2	<i>Selenium</i>		<i>6.15</i>	<i>13.7</i>	<i>17.1</i>	<i>U</i>
7440-22-4	Silver	1.37	1.09	3.42	17.1	<i>J, DM Q</i>
7440-23-5	<i>Sodium</i>	272	<i>30.8</i>	<i>68.4</i>	<i>85.5</i>	<i>DM</i>
7440-28-0	Thallium		4.51	13.7	17.1	<i>U</i>
7440-62-2	<i>Vanadium</i>	27.9	4.10	13.7	17.1	<i>D</i>
7440-66-6	Zinc	165	6.84	13.7	17.1	<i>D</i>

Italicized = secondary result

*MWHB19*

# 1 - FORM I ANALYSIS DATA SHEET

18111124

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0443-03RE2
Sampled:	12/11/18 11:30	Prepared:	12/12/18 09:26
Solids:	67.31	Preparation:	3050_METALS_PREP
Initial/Final:	2.1726 g / 50 ml	Dilution:	1
Batch:	B8L0398	Sequence:	S8L0171
		Calibration:	EL80031
		Instrument:	ICP-AES 7400

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7429-90-5	<i>Aluminum</i>	7530	3.21	6.84	8.55	Am JH
7440-36-0	Antimony		0.615	1.37	1.71	U JK
7440-38-2	<i>Arsenic</i>	11.3	0.615	1.37	1.71	JH
7440-39-3	Barium	51.6	0.479	1.37	1.71	U JL
7440-41-7	Beryllium		0.0684	0.137	0.171	
7440-43-9	Cadmium	0.619	0.0615	0.137	0.171	
7440-70-2	<i>Calcium</i>	9380	3.42	6.84	8.55	B F JH
7440-47-3	Chromium	19.2	0.376	1.37	1.71	
7440-48-4	Cobalt	5.03	0.103	0.342	1.71	
7440-50-8	Copper	72.8	0.663	1.37	1.71	
7439-89-6	<i>Iron</i>	11900	1.26	2.74	3.42	JH
7439-92-1	Lead	33.2	0.684	1.37	1.71	
7439-95-4	<i>Magnesium</i>	2720	2.32	6.84	8.55	E JH
7439-96-5	Manganese	260	0.342	0.684	1.71	
7440-02-0	Nickel	15.8	0.615	1.37	1.71	
7440-09-7	Potassium	1300	2.87	6.84	8.55	B JL
7782-49-2	Selenium		0.615	1.37	1.71	U
7440-22-4	<i>Silver</i>	1.26	0.109	0.342	1.71	JG
7440-23-5	Sodium	280	3.08	6.84	8.55	JL
7440-28-0	<i>Thallium</i>	1.52	0.451	1.37	1.71	JG
7440-62-2	Vanadium	27.8	0.410	1.37	1.71	
7440-66-6	Zinc	160	0.684	1.37	1.71	

Italicized = secondary result

JH 12/19



**1 - FORM I**  
**ANALYSIS DATA SHEET**

18111124

Laboratory:	Environmental Monitoring and Tech			SDG:	10RB-2nd Set	
Client:	Ecology and Environment, Inc.			Project:	1004530.0470.001.01	
Matrix:	Solid	Laboratory ID:	18L0443-03	File ID:	121718S-025	
Sampled:	12/11/18 11:30	Prepared:	12/17/18 07:35	Analyzed:	12/17/18 12:27	
Solids:	67.31	Preparation:	7471_HG_PREP	Dilution:	1	
Initial/Final:	0.5271 g / 50 ml					
Batch:	B8L0513	Sequence:	S8L0231	Calibration:	EL80039	Instrument: Hg Hydra

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7439-97-6	Mercury	0.098	0.028	0.056	0.085	

*MW Hottel*

# 1 - FORM I ANALYSIS DATA SHEET

18111127

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0510-03
Sampled:	12/11/18 08:40	Prepared:	12/17/18 08:42
Solids:	87.09	Preparation:	3050_METALS_PREP
Initial/Final:	2.0416 g / 50 ml	Dilution:	100
Batch:	B8L0514	Sequence:	S8L0264
		Calibration:	EL80047
		Instrument:	ICP-AES 7400

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7429-90-5	Aluminum	20200	264	562	703	<i>mu JL</i>
7440-36-0	<i>Antimony</i>		50.6	112	141	<i>U mu</i>
7440-38-2	<i>Arsenic</i>		50.6	112	141	<i>U</i>
7440-39-3	<i>Barium</i>	111	39.4	112	141	<i>J, mu Q</i>
7440-41-7	<i>Beryllium</i>		5.62	11.2	14.1	<i>U</i>
7440-43-9	<i>Cadmium</i>		5.06	11.2	14.1	<i>U</i>
7440-70-2	<i>Calcium</i>	7080	281	562	703	<i>D, B mu</i>
7440-47-3	<i>Chromium</i>	51.2	30.9	112	141	<i>J, D Q</i>
7440-48-4	<i>Cobalt</i>	8.72	8.44	28.1	141	<i>J, mu Q</i>
7440-50-8	<i>Copper</i>		54.6	112	141	<i>U mu</i>
7439-89-6	<i>Iron</i>	27500	103	225	281	<i>D, B mu JL</i>
7439-92-1	<i>Lead</i>		56.2	112	141	<i>U</i>
7439-95-4	<i>Magnesium</i>	7400	191	562	703	<i>D</i>
7439-96-5	<i>Manganese</i>	476	28.1	56.2	141	<i>mu</i>
7440-02-0	<i>Nickel</i>	59.1	50.6	112	141	<i>J, D mu Q</i>
7440-09-7	<i>Potassium</i>	1370	236	562	703	<i>D, B mu</i>
7782-49-2	<i>Selenium</i>		50.6	112	141	<i>U</i>
7440-22-4	<i>Silver</i>		9.00	28.1	141	<i>U</i>
7440-23-5	<i>Sodium</i>	304	253	562	703	<i>J, D mu Q</i>
7440-28-0	<i>Thallium</i>		37.1	112	141	<i>U</i>
7440-62-2	<i>Vanadium</i>	60.7	33.7	112	141	<i>J, mu Q</i>
7440-66-6	<i>Zinc</i>		56.2	112	141	<i>U mu</i>

Italicized = secondary result

*mu H 1019*

# 1 - FORM I ANALYSIS DATA SHEET

18111127

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0510-03RE1
Sampled:	12/11/18 08:40	Prepared:	12/17/18 08:42
Solids:	87.09	Preparation:	3050_METALS_PREP
Initial/Final:	2.0416 g / 50 ml	Dilution:	10
Batch:	B8L0514	Sequence:	S8L0264
		Calibration:	EL80047
		Instrument:	ICP-AES 7400

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7429-90-5	<i>Aluminum</i>	17100	26.4	56.2	70.3	D, E, M, JL
7440-36-0	<i>Antimony</i>		5.06	11.2	14.1	U
7440-38-2	<i>Arsenic</i>	8.72	5.06	11.2	14.1	J, D, M, Q
7440-39-3	<i>Barium</i>	93.7	3.94	11.2	14.1	M, M, M, M
7440-41-7	<i>Beryllium</i>		0.562	1.12	1.41	U, J
7440-43-9	<i>Cadmium</i>		0.506	1.12	1.41	U, M
7440-70-2	<i>Calcium</i>	5900	28.1	56.2	70.3	D, B, M, JL
7440-47-3	<i>Chromium</i>	44.7	3.09	11.2	14.1	D, M, M, V
7440-48-4	<i>Cobalt</i>	12.2	0.844	2.81	14.1	J, D, M, Q
7440-50-8	<i>Copper</i>	35.0	5.46	11.2	14.1	M, M
7439-89-6	<i>Iron</i>	23200	10.3	22.5	28.1	D, B, M
7439-92-1	<i>Lead</i>	14.7	5.62	11.2	14.1	D, M, M, JK
7439-95-4	<i>Magnesium</i>	6190	19.1	56.2	70.3	D
7439-96-5	<i>Manganese</i>	397	2.81	5.62	14.1	D
7440-02-0	<i>Nickel</i>	50.5	5.06	11.2	14.1	D, M, M
7440-09-7	<i>Potassium</i>	1210	23.6	56.2	70.3	D, B, M
7782-49-2	<i>Selenium</i>		5.06	11.2	14.1	U, M
7440-22-4	<i>Silver</i>	4.36	0.900	2.81	14.1	J, D, M, Q
7440-23-5	<i>Sodium</i>	266	25.3	56.2	70.3	D, M
7440-28-0	<i>Thallium</i>		3.71	11.2	14.1	U
7440-62-2	<i>Vanadium</i>	52.0	3.37	11.2	14.1	D
7440-66-6	<i>Zinc</i>	48.8	5.62	11.2	14.1	D, M, M

Italicized = secondary result

*John H. 19*

# 1 - FORM I ANALYSIS DATA SHEET

18111127

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0510-03RE2
Sampled:	12/11/18 08:40	Prepared:	12/17/18 08:42
Solids:	87.09	Preparation:	3050_METALS_PREP
Initial/Final:	2.0416 g / 50 ml	Dilution:	1
Batch:	B8L0514	Sequence:	S8L0264
		Calibration:	EL80047
		Instrument:	ICP-AES 7400

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7429-90-5	<i>Aluminum</i>	<del>17100</del>	<del>2.64</del>	<del>5.62</del>	<del>7.03</del>	<del>JK JL</del>
7440-36-0	Antimony		0.506	1.12	1.41	U JL
7440-38-2	Arsenic	8.55	0.506	1.12	1.41	
7440-39-3	Barium	91.3	0.394	1.12	1.41	JK
7440-41-7	<i>Beryllium</i>	<del>28100000</del>	<del>0.0562</del>	<del>0.112</del>	<del>0.141</del>	<del>JK JL</del>
7440-43-9	Cadmium	0.444	0.0506	0.112	0.141	
7440-70-2	<i>Calcium</i>	<del>5440</del>	<del>2.81</del>	<del>5.62</del>	<del>7.03</del>	<del>JK JL</del>
7440-47-3	Chromium	42.5	0.309	1.12	1.41	
7440-48-4	<i>Cobalt</i>	<del>11.2</del>	<del>0.0844</del>	<del>0.281</del>	<del>1.41</del>	<del>JK</del>
7440-50-8	Copper	32.2	0.546	1.12	1.41	JK
7439-89-6	<i>Iron</i>	<del>19000</del>	<del>1.03</del>	<del>2.25</del>	<del>2.81</del>	<del>JK JL</del>
7439-92-1	Lead	15.1	0.562	1.12	1.41	JK
7439-95-4	<i>Magnesium</i>	<del>5770</del>	<del>1.91</del>	<del>5.62</del>	<del>7.03</del>	<del>JK JL</del>
7439-96-5	Manganese	360	0.281	0.562	1.41	
7440-02-0	<i>Nickel</i>	<del>45.3</del>	<del>0.506</del>	<del>1.12</del>	<del>1.41</del>	
7440-09-7	Potassium	1180	2.36	5.62	7.03	<del>JK JL</del>
7782-49-2	Selenium		0.506	1.12	1.41	U
7440-22-4	<i>Silver</i>	<del>3.58</del>	<del>0.0900</del>	<del>0.281</del>	<del>1.41</del>	<del>JK</del>
7440-23-5	Sodium	264	2.53	5.62	7.03	
7440-28-0	Thallium	3.09	0.371	1.12	1.41	
7440-62-2	Vanadium	48.6	0.337	1.12	1.41	
7440-66-6	Zinc	47.4	0.562	1.12	1.41	

Italicized = secondary result

mm H219

**1 - FORM I**  
**ANALYSIS DATA SHEET**

18111127

Laboratory:	Environmental Monitoring and Tech			SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.			Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0510-03RE3	File ID:	12192018-045
Sampled:	12/11/18 08:40	Prepared:	12/17/18 08:42	Analyzed:	12/19/18 18:10
Solids:	87.09	Preparation:	3050_METALS_PREP	Dilution:	1
Initial/Final:	2.0416 g / 50 ml				
Batch:	B8L0514	Sequence:	S8L0288	Calibration:	EL80050
				Instrument:	ICP-AES 7400

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7440-48-4	Cobalt	11.4	0.0844	0.281	1.41	
7440-02-0	Nickel	45.6	0.506	1.12	1.41	
7440-09-7	Potassium	1170	2.36	5.62	7.03	<i>Amu</i>

Italicized = secondary result

*mm H-10*

**1 - FORM I**  
**ANALYSIS DATA SHEET**

18111127

Laboratory:	Environmental Monitoring and Tech			SDG:	10RB-2nd Set	
Client:	Ecology and Environment, Inc.			Project:	1004530.0470.001.01	
Matrix:	Solid	Laboratory ID:	18L0510-03	File ID:	121918S-025	
Sampled:	12/11/18 08:40	Prepared:	12/19/18 07:45	Analyzed:	12/19/18 11:12	
Solids:	87.09	Preparation:	7471_HG_PREP	Dilution:	1	
Initial/Final:	0.5398 g / 50 ml					
Batch:	B8L0599	Sequence:	S8L0281	Calibration:	EL80049	Instrument: Hg Hydra

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7439-97-6	Mercury	0.052	0.021	0.043	0.064	JQ

MW H-19

# 1 - FORM I ANALYSIS DATA SHEET

18111128

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0510-04
Sampled:	12/12/18 10:00	Prepared:	12/17/18 08:42
Solids:	90.25	Preparation:	3050_METALS_PREP
Initial/Final:	2.1546 g / 50 ml	Dilution:	100
Batch:	B8L0514	Sequence:	S8L0264
		Calibration:	EL80047
		Instrument:	ICP-AES 7400

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7429-90-5	Aluminum	4330	242	514	643	<i>Am JL</i>
7440-36-0	<del>Antimony</del>		<del>46.3</del>	<del>103</del>	<del>129</del>	<del>U</del>
7440-38-2	<del>Arsenic</del>		<del>46.3</del>	<del>103</del>	<del>129</del>	<del>U</del>
7440-39-3	Barium	36.3	36.0	103	129	<i>J, Am</i>
7440-41-7	Beryllium		5.14	10.3	12.9	U
7440-43-9	Cadmium		4.63	10.3	12.9	U
7440-70-2	Calcium	2820	257	514	643	<del>D, B, Am</del>
7440-47-3	Chromium		28.3	<del>103</del>	129	U
7440-48-4	Cobalt		7.71	25.7	129	U
7440-50-8	Copper	57.1	49.9	103	129	<i>J, Am, Q, m</i>
7439-89-6	Iron	12000	94.6	206	257	<del>D, B, Am, JL</del>
7439-92-1	<del>Lead</del>	66.9	51.4	103	129	<i>J, Am, Q</i>
7439-95-4	Magnesium	2460	175	514	643	<i>D</i>
7439-96-5	Manganese	172	25.7	51.4	129	<i>Am</i>
7440-02-0	Nickel		46.3	103	129	U
7440-09-7	Potassium	300	216	514	643	<i>J, D, B, Am, Q</i>
7782-49-2	Selenium		46.3	103	129	U
7440-22-4	Silver		8.23	25.7	129	U
7440-23-5	Sodium		231	514	643	U
7440-28-0	Thallium		33.9	103	129	U
7440-62-2	Vanadium		30.9	103	129	U
7440-66-6	Zinc	243	51.4	103	129	<i>Am, JL</i>

Italicized = secondary result

*Mut to 19*

# 1 - FORM I ANALYSIS DATA SHEET

18111128

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0510-04RE1
Sampled:	12/12/18 10:00	Prepared:	12/17/18 08:42
Solids:	90.25	Preparation:	3050_METALS_PREP
Initial/Final:	2.1546 g / 50 ml	Dilution:	10
Batch:	B8L0514	Sequence:	S8L0264
		Calibration:	EL80047
		Instrument:	ICP-AES 7400

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7429-90-5	<del>Aluminum</del>	4830	24.2	51.4	64.3	<del>Dm</del>
7440-36-0	Antimony		4.63	10.3	12.9	U
7440-38-2	Arsenic	8.13	4.63	10.3	12.9	J, P, Q
7440-39-3	Barium	41.6	3.60	10.3	12.9	<del>Dm</del>
7440-41-7	Beryllium		0.514	1.03	1.29	U <del>JK</del>
7440-43-9	<del>Cadmium</del>	1.77	0.463	1.03	1.29	<del>Dm</del>
7440-70-2	Calcium	3160	25.7	51.4	64.3	<del>D, B</del> <del>JK</del>
7440-47-3	<del>Chromium</del>	18.7	2.83	10.3	12.9	<del>Dm</del>
7440-48-4	Cobalt	4.06	0.771	2.57	12.9	J, P, Q
7440-50-8	Copper	63.6	4.99	10.3	12.9	<del>Dm</del>
7439-89-6	Iron	13400	9.46	20.6	25.7	<del>D, B</del> <del>JK</del>
7439-92-1	Lead	80.9	5.14	10.3	12.9	<del>Dm</del>
7439-95-4	Magnesium	2710	17.5	51.4	64.3	<del>D</del> <del>JK</del>
7439-96-5	<del>Manganese</del>	192	2.57	5.14	12.9	<del>D</del>
7440-02-0	Nickel	18.6	4.63	10.3	12.9	<del>Dm</del>
7440-09-7	Potassium	442	21.6	51.4	64.3	<del>D, B</del> <del>JK</del>
7782-49-2	Selenium		4.63	10.3	12.9	U <del>JK</del>
7440-22-4	Silver	2.55	0.823	2.57	12.9	J, P, Q
7440-23-5	<del>Sodium</del>	238	23.1	51.4	64.3	<del>Dm</del>
7440-28-0	<del>Thallium</del>		3.39	10.3	12.9	U
7440-62-2	Vanadium	17.2	3.09	10.3	12.9	D
7440-66-6	Zinc	278	5.14	10.3	12.9	<del>Dm</del>

Italicized = secondary result

*MW Hall*



# 1 - FORM I ANALYSIS DATA SHEET

18111128

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0510-04RE2
		File ID:	12182018-054
Sampled:	12/12/18 10:00	Prepared:	12/17/18 08:42
		Analyzed:	12/18/18 13:55
Solids:	90.25	Preparation:	3050_METALS_PREP
		Dilution:	1
Initial/Final:	2.1546 g / 50 ml		
Batch:	B8L0514	Sequence:	S8L0264
		Calibration:	EL80047
		Instrument:	ICP-AES 7400

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7429-90-5	<del>Aluminum</del>	<del>4770</del>	<del>2.42</del>	<del>5.14</del>	<del>6.43</del>	<del>JL</del>
7440-36-0	Antimony		0.463	1.03	1.29	U
7440-38-2	Arsenic	7.59	0.463	1.03	1.29	
7440-39-3	Barium	40.6	0.360	1.03	1.29	JH
7440-41-7	<del>Beryllium</del>	<del>25700000</del>	<del>0.0514</del>	<del>0.103</del>	<del>0.129</del>	<del>JL</del>
7440-43-9	Cadmium	1.94	0.0463	0.103	0.129	
7440-70-2	<del>Calcium</del>	<del>2940</del>	<del>2.57</del>	<del>5.14</del>	<del>6.43</del>	<del>B, E</del>
7440-47-3	Chromium	17.8	0.283	1.03	1.29	
7440-48-4	<del>Cobalt</del>	<del>4.22</del>	<del>0.0771</del>	<del>0.257</del>	<del>1.29</del>	<del>U</del>
7440-50-8	Copper	61.6	0.499	1.03	1.29	JL
7439-89-6	<del>Iron</del>	<del>11600</del>	<del>0.946</del>	<del>2.06</del>	<del>2.57</del>	<del>B, E</del>
7439-92-1	Lead	73.7	0.514	1.03	1.29	JK
7439-95-4	<del>Magnesium</del>	<del>2560</del>	<del>1.75</del>	<del>5.14</del>	<del>6.43</del>	<del>JL</del>
7439-96-5	Manganese	176	0.257	0.514	1.29	
7440-02-0	<del>Nickel</del>	<del>17.6</del>	<del>0.463</del>	<del>1.03</del>	<del>1.29</del>	<del>U</del>
7440-09-7	<del>Potassium</del>	<del>451</del>	<del>2.16</del>	<del>5.14</del>	<del>6.43</del>	<del>JL</del>
7782-49-2	Selenium		0.463	1.03	1.29	U
7440-22-4	<del>Silver</del>	<del>1.81</del>	<del>0.0823</del>	<del>0.257</del>	<del>1.29</del>	<del>U</del>
7440-23-5	Sodium	234	2.31	5.14	6.43	
7440-28-0	Thallium	1.54	0.339	1.03	1.29	
7440-62-2	Vanadium	16.6	0.309	1.03	1.29	
7440-66-6	Zinc	264	0.514	1.03	1.29	

Italicized = secondary result

mw H-19

# 1 - FORM I

## ANALYSIS DATA SHEET

18111128

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0510-04RE3
		File ID:	12192018-046
Sampled:	12/12/18 10:00	Prepared:	12/17/18 08:42
		Analyzed:	12/19/18 18:14
Solids:	90.25	Preparation:	3050_METALS_PREP
		Dilution:	1
Initial/Final:	2.1546 g / 50 ml		
Batch:	B8L0514	Sequence:	S8L0288
		Calibration:	EL80050
		Instrument:	ICP-AES 7400

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7440-48-4	Cobalt	4.25	0.0771	0.257	1.29	
7440-02-0	Nickel	17.6	0.463	1.03	1.29	
7440-09-7	Potassium	440	2.16	5.14	6.43	<i>BLW</i>

Italicized = secondary result

*MWH*

**1 - FORM I**  
**ANALYSIS DATA SHEET**

18111128

Laboratory:	Environmental Monitoring and Tech			SDG:	10RB-2nd Set	
Client:	Ecology and Environment, Inc.			Project:	1004530.0470.001.01	
Matrix:	Solid	Laboratory ID:	18L0510-04	File ID:	121918S-026	
Sampled:	12/12/18 10:00	Prepared:	12/19/18 07:45	Analyzed:	12/19/18 11:15	
Solids:	90.25	Preparation:	7471_HG_PREP	Dilution:	1	
Initial/Final:	0.532 g / 50 ml					
Batch:	B8L0599	Sequence:	S8L0281	Calibration:	EL80049	Instrument: Hg Hydra

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7439-97-6	Mercury	0.093	0.021	0.042	0.062	

*MW H019*

# 1 - FORM I ANALYSIS DATA SHEET

18111129

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0510-05
Sampled:	12/12/18 10:10	Prepared:	12/17/18 08:42
Solids:	90.33	Preparation:	3050_METALS_PREP
Initial/Final:	2.0658 g / 50 ml	Dilution:	100
Batch:	B8L0514	Sequence:	S8L0264
		Calibration:	EL80047
		Instrument:	ICP-AES 7400

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7429-90-5	Aluminum	15000	252	536	670	<i>mu</i> JL
7440-36-0	<i>Antimony</i>		48.2	107	134	U
7440-38-2	<i>Arsenic</i>		48.2	107	134	U
7440-39-3	<i>Barium</i>	58.4	37.5	107	134	<i>J. AnQ</i>
7440-41-7	<i>Beryllium</i>		5.36	10.7	13.4	U
7440-43-9	<i>Cadmium</i>		4.82	10.7	13.4	U
7440-70-2	<i>Calcium</i>	4310	268	536	670	<del>D, B</del> <i>mu</i>
7440-47-3	<i>Chromium</i>		29.5	107	134	U
7440-48-4	<i>Cobalt</i>		8.04	26.8	134	U
7440-50-8	<i>Copper</i>		52.0	107	134	<i>mu</i> U
7439-89-6	Iron	19000	98.6	214	268	<del>D, B</del> <i>mu</i> JL
7439-92-1	<i>Lead</i>		53.6	107	134	U
7439-95-4	<i>Magnesium</i>	5380	182	536	670	<i>D</i>
7439-96-5	<i>Manganese</i>	269	26.8	53.6	134	<i>D</i> <i>mu</i>
7440-02-0	<i>Nickel</i>		48.2	107	134	U
7440-09-7	<i>Potassium</i>	735	225	536	670	<del>D, B</del> <i>mu</i>
7782-49-2	<i>Selenium</i>		48.2	107	134	U
7440-22-4	<i>Silver</i>		8.57	26.8	134	U
7440-23-5	<i>Sodium</i>		241	536	670	U
7440-28-0	<i>Thallium</i>		35.4	107	134	U
7440-62-2	<i>Vanadium</i>	38.3	32.2	107	134	<i>J. AnQ</i>
7440-66-6	<i>Zinc</i>		53.6	107	134	<i>mu</i> U

Italicized = secondary result

*MW H219*

# 1 - FORM I ANALYSIS DATA SHEET

18111129

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0510-05RE1
Sampled:	12/12/18 10:10	Prepared:	12/17/18 08:42
Solids:	90.33	Preparation:	3050_METALS_PREP
Initial/Final:	2.0658 g / 50 ml	Dilution:	10
Batch:	B8L0514	Sequence:	S8L0264
		Calibration:	EL80047
		Instrument:	ICP-AES 7400

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7429-90-5	<i>Aluminum</i>	14700	25.2	53.6	67.0	D, B, JL
7440-36-0	<i>Antimony</i>		4.82	10.7	13.4	U
7440-38-2	<i>Arsenic</i>	6.48	4.82	10.7	13.4	J, D, JL
7440-39-3	<i>Barium</i>	57.9	3.75	10.7	13.4	J, D, JL
7440-41-7	<i>Beryllium</i>		0.536	1.07	1.34	U, JL
7440-43-9	<i>Cadmium</i>		0.482	1.07	1.34	U, JL
7440-70-2	<i>Calcium</i>	4220	26.8	53.6	67.0	D, B, JL
7440-47-3	<i>Chromium</i>	22.9	2.95	10.7	13.4	D, JL
7440-48-4	<i>Cobalt</i>	7.15	0.804	2.68	13.4	J, D, JL
7440-50-8	<i>Copper</i>	24.7	5.20	10.7	13.4	D, JL
7439-89-6	<i>Iron</i>	18500	9.86	21.4	26.8	D, B, JL
7439-92-1	<i>Lead</i>	13.2	5.36	10.7	13.4	J, D, JL
7439-95-4	<i>Magnesium</i>	5200	18.2	53.6	67.0	D, JK
7439-96-5	<i>Manganese</i>	263	2.68	5.36	13.4	D
7440-02-0	<i>Nickel</i>	27.6	4.82	10.7	13.4	D, JL
7440-09-7	<i>Potassium</i>	774	22.5	53.6	67.0	D, B, JL
7782-49-2	<i>Selenium</i>		4.82	10.7	13.4	U, JL
7440-22-4	<i>Silver</i>	3.05	0.857	2.68	13.4	J, D, JL
7440-23-5	<i>Sodium</i>	213	24.1	53.6	67.0	D, JL
7440-28-0	<i>Thallium</i>		3.54	10.7	13.4	U
7440-62-2	<i>Vanadium</i>	40.8	3.22	10.7	13.4	D
7440-66-6	<i>Zinc</i>	33.8	5.36	10.7	13.4	D, JL

Italicized = secondary result

JMW/Holp

# 1 - FORM I ANALYSIS DATA SHEET

18111129

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0510-05RE2
Sampled:	12/12/18 10:10	Prepared:	12/17/18 08:42
Solids:	90.33	Preparation:	3050_METALS_PREP
Initial/Final:	2.0658 g / 50 ml	Dilution:	1
Batch:	B8L0514	Sequence:	S8L0264
		Calibration:	EL80047
		Instrument:	ICP-AES 7400

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7429-90-5	<del>Aluminum</del>	<del>14600</del>	<del>2.52</del>	<del>5.36</del>	<del>6.70</del>	<del>HL</del>
7440-36-0	Antimony		0.482	1.07	1.34	U
7440-38-2	Arsenic	6.60	0.482	1.07	1.34	
7440-39-3	Barium	56.4	0.375	1.07	1.34	JH
7440-41-7	<del>Beryllium</del>	<del>26800000</del>	<del>0.0536</del>	<del>0.107</del>	<del>0.134</del>	<del>HL</del>
7440-43-9	Cadmium	0.319	0.0482	0.107	0.134	
7440-70-2	<del>Calcium</del>	<del>3900</del>	<del>2.68</del>	<del>5.36</del>	<del>6.70</del>	<del>B, HL</del>
7440-47-3	Chromium	21.7	0.295	1.07	1.34	
7440-48-4	<del>Cobalt</del>	<del>7.06</del>	<del>0.0804</del>	<del>0.268</del>	<del>1.34</del>	<del>HL</del>
7440-50-8	Copper	23.1	0.520	1.07	1.34	JL
7439-89-6	<del>Iron</del>	<del>15400</del>	<del>0.988</del>	<del>2.14</del>	<del>2.68</del>	<del>B, HL</del>
7439-92-1	Lead	13.5	0.536	1.07	1.34	JK
7439-95-4	<del>Magnesium</del>	<del>4850</del>	<del>1.82</del>	<del>5.36</del>	<del>6.70</del>	<del>HL</del>
7439-96-5	Manganese	239	0.268	0.536	1.34	
7440-02-0	<del>Nickel</del>	<del>24.9</del>	<del>0.482</del>	<del>1.07</del>	<del>1.34</del>	
7440-09-7	Potassium	771	2.25	5.36	6.70	<del>HL</del>
7782-49-2	Selenium		0.482	1.07	1.34	U
7440-22-4	<del>Silver</del>	<del>2.77</del>	<del>0.0857</del>	<del>0.268</del>	<del>1.34</del>	<del>HL</del>
7440-23-5	Sodium	211	2.41	5.36	6.70	
7440-28-0	Thallium	2.30	0.354	1.07	1.34	
7440-62-2	Vanadium	37.9	0.322	1.07	1.34	
7440-66-6	Zinc	33.3	0.536	1.07	1.34	

Italicized = secondary result

*MWH/10*

# 1 - FORM I ANALYSIS DATA SHEET

18111129

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0510-05RE3
		File ID:	12192018-047
Sampled:	12/12/18 10:10	Prepared:	12/17/18 08:42
		Analyzed:	12/19/18 18:18
Solids:	90.33	Preparation:	3050_METALS_PREP
		Dilution:	1
Initial/Final:	2.0658 g / 50 ml		
Batch:	B8L0514	Sequence:	S8L0288
		Calibration:	EL80050
		Instrument:	ICP-AES 7400

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7440-48-4	Cobalt	7.17	0.0804	0.268	1.34	
7440-02-0	Nickel	25.0	0.482	1.07	1.34	
7440-09-7	Potassium	741	2.25	5.36	6.70	<i>Am</i>

Italicized = secondary result

*Am*

**1 - FORM I**  
**ANALYSIS DATA SHEET**

18111129

Laboratory:	Environmental Monitoring and Tech			SDG:	10RB-2nd Set	
Client:	Ecology and Environment, Inc.			Project:	1004530.0470.001.01	
Matrix:	Solid	Laboratory ID:	18L0510-05	File ID:	121918S-027	
Sampled:	12/12/18 10:10	Prepared:	12/19/18 07:45	Analyzed:	12/19/18 11:17	
Solids:	90.33	Preparation:	7471_HG_PREP	Dilution:	1	
Initial/Final:	0.5472 g / 50 ml					
Batch:	B8L0599	Sequence:	S8L0281	Calibration:	EL80049	Instrument: Hg Hydra

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7439-97-6	Mercury	0.034	0.020	0.040	0.061	JQ

mwholq



# 1 - FORM I ANALYSIS DATA SHEET

18111130

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0510-06
Sampled:	12/12/18 12:00	Prepared:	12/17/18 08:42
Solids:	85.79	Preparation:	3050_METALS_PREP
Initial/Final:	2.0236 g / 50 ml	Dilution:	100
Batch:	B8L0514	Sequence:	S8L0264
		Calibration:	EL80047
		Instrument:	ICP-AES 7400

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7429-90-5	Aluminum	10800	271	576	720	<i>DL</i> <i>JL</i>
7440-36-0	<del>Antimony</del>		51.8	115	144	U
7440-38-2	Arsenic		51.8	115	144	U
7440-39-3	Barium	53.0	40.3	115	144	<i>J, DL</i> <i>DL</i>
7440-41-7	Beryllium		5.76	11.5	14.4	U
7440-43-9	Cadmium		5.18	11.5	14.4	U
7440-70-2	Calcium	5720	288	576	720	<del>D, B</del> <i>DL</i>
7440-47-3	Chromium	34.6	31.7	115	144	<i>J, DL</i> <i>DL</i>
7440-48-4	Cobalt		8.64	28.8	144	U
7440-50-8	Copper	86.1	55.9	115	144	<i>J, DL</i> <i>DL</i>
7439-89-6	Iron	20400	106	230	288	<del>D, B</del> <i>DL</i> <i>JL</i>
7439-92-1	<del>Lead</del>	62.8	57.6	115	144	<i>J, DL</i> <i>DL</i>
7439-95-4	Magnesium	6230	196	576	720	<i>DL</i>
7439-96-5	Manganese	323	28.8	57.6	144	<i>DL</i> <i>DL</i>
7440-02-0	Nickel		51.8	115	144	U
7440-09-7	Potassium	632	242	576	720	<i>J, DL</i> <i>DL</i> <i>DL</i>
7782-49-2	Selenium		51.8	115	144	U
7440-22-4	Silver		9.22	28.8	144	U
7440-23-5	Sodium	349	259	576	720	<i>J, DL</i> <i>DL</i>
7440-28-0	Thallium		38.0	115	144	U
7440-62-2	Vanadium		34.6	115	144	U
7440-66-6	Zinc	249	57.6	115	144	<i>DL</i> <i>DL</i>

Italicized = secondary result

*new Hot 19*

# 1 - FORM I ANALYSIS DATA SHEET

18111130

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0510-06RE1
Sampled:	12/12/18 12:00	Prepared:	12/17/18 08:42
Solids:	85.79	Preparation:	3050_METALS_PREP
Initial/Final:	2.0236 g / 50 ml	Dilution:	10
Batch:	B8L0514	Sequence:	S8L0264
		Calibration:	EL80047
		Instrument:	ICP-AES 7400

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7429-90-5	<i>Aluminum</i>	10800	27.1	57.6	72.0	pm
7440-36-0	<i>Antimony</i>		5.18	11.5	14.4	U
7440-38-2	<i>Arsenic</i>	11.1	5.18	11.5	14.4	J, pm
7440-39-3	<i>Barium</i>	54.9	4.03	11.5	14.4	pm
7440-41-7	<i>Beryllium</i>		0.576	1.15	1.44	U, JL
7440-43-9	<i>Cadmium</i>	1.24	0.518	1.15	1.44	J, pm
7440-70-2	<i>Calcium</i>	5680	28.8	57.6	72.0	D, pm, JL
7440-47-3	<i>Chromium</i>	34.3	3.17	11.5	14.4	pm
7440-48-4	<i>Cobalt</i>	10.5	0.864	2.88	14.4	J, pm
7440-50-8	<i>Copper</i>	84.6	5.59	11.5	14.4	pm
7439-89-6	<i>Iron</i>	20200	10.6	23.0	28.8	D, pm
7439-92-1	<i>Lead</i>	76.8	5.76	11.5	14.4	pm
7439-95-4	<i>Magnesium</i>	6140	19.6	57.6	72.0	D, JK
7439-96-5	<i>Manganese</i>	321	2.88	5.76	14.4	D
7440-02-0	<i>Nickel</i>	26.2	5.18	11.5	14.4	pm
7440-09-7	<i>Potassium</i>	789	24.2	57.6	72.0	D, pm
7782-49-2	<i>Selenium</i>		5.18	11.5	14.4	U
7440-22-4	<i>Silver</i>	3.40	0.922	2.88	14.4	J, pm
7440-23-5	<i>Sodium</i>	366	25.9	57.6	72.0	pm
7440-28-0	<i>Thallium</i>		3.80	11.5	14.4	U
7440-62-2	<i>Vanadium</i>	37.5	3.46	11.5	14.4	D
7440-66-6	<i>Zinc</i>	257	5.76	11.5	14.4	D

Italicized = secondary result

John Holo

# 1 - FORM I ANALYSIS DATA SHEET

18111130

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0510-06RE2
		File ID:	12182018-056
Sampled:	12/12/18 12:00	Prepared:	12/17/18 08:42
		Analyzed:	12/18/18 14:03
Solids:	85.79	Preparation:	3050_METALS_PREP
		Dilution:	1
Initial/Final:	2.0236 g / 50 ml		
Batch:	B8L0514	Sequence:	S8L0264
		Calibration:	EL80047
		Instrument:	ICP-AES 7400

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7429-90-5	<del>Aluminum</del>	<del>10400</del>	<del>2.71</del>	<del>5.76</del>	<del>7.20</del>	<del>Am JH</del>
7440-36-0	Antimony		0.518	1.15	1.44	U JC
7440-38-2	Arsenic	9.55	0.518	1.15	1.44	
7440-39-3	Barium	51.3	0.403	1.15	1.44	JH
7440-41-7	<del>Beryllium</del>	<del>28900000</del>	<del>0.0576</del>	<del>0.115</del>	<del>0.144</del>	<del>Am JH</del>
7440-43-9	Cadmium	1.48	0.0518	0.115	0.144	
7440-70-2	<del>Calcium</del>	<del>5130</del>	<del>2.88</del>	<del>5.76</del>	<del>7.20</del>	<del>B-E JH</del>
7440-47-3	Chromium	31.7	0.317	1.15	1.44	
7440-48-4	<del>Cobalt</del>	<del>9.85</del>	<del>0.0864</del>	<del>0.288</del>	<del>1.44</del>	<del>W</del>
7440-50-8	Copper	78.4	0.559	1.15	1.44	JL
7439-89-6	<del>Iron</del>	<del>16400</del>	<del>1.06</del>	<del>2.30</del>	<del>2.88</del>	<del>B-E JH</del>
7439-92-1	Lead	68.6	0.576	1.15	1.44	JK
7439-95-4	<del>Magnesium</del>	<del>5540</del>	<del>1.96</del>	<del>5.76</del>	<del>7.20</del>	<del>Am JH</del>
7439-96-5	Manganese	283	0.288	0.576	1.44	
7440-02-0	<del>Nickel</del>	<del>23.5</del>	<del>0.518</del>	<del>1.15</del>	<del>1.44</del>	
7440-09-7	Potassium	753	2.42	5.76	7.20	<del>Am JH</del>
7782-49-2	Selenium		0.518	1.15	1.44	U
7440-22-4	<del>Silver</del>	<del>2.89</del>	<del>0.0922</del>	<del>0.288</del>	<del>1.44</del>	<del>W</del>
7440-23-5	Sodium	349	2.59	5.76	7.20	
7440-28-0	Thallium	2.31	0.380	1.15	1.44	
7440-62-2	Vanadium	34.6	0.346	1.15	1.44	
7440-66-6	Zinc	237	0.576	1.15	1.44	

Italicized = secondary result

MWH 19

# 1 - FORM I

## ANALYSIS DATA SHEET

18111130

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0510-06RE3
		File ID:	12192018-048
Sampled:	12/12/18 12:00	Prepared:	12/17/18 08:42
		Analyzed:	12/19/18 18:23
Solids:	85.79	Preparation:	3050_METALS_PREP
		Dilution:	1
Initial/Final:	2.0236 g / 50 ml		
Batch:	B8L0514	Sequence:	S8L0288
		Calibration:	EL80050
		Instrument:	ICP-AES 7400

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7440-48-4	Cobalt	9.96	0.0864	0.288	1.44	
7440-02-0	Nickel	23.7	0.518	1.15	1.44	
7440-09-7	Potassium	765	2.42	5.76	7.20	<i>mm</i>

Italicized = secondary result

*mm/10/19*

**1 - FORM I**  
**ANALYSIS DATA SHEET**

18111130

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set				
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01				
Matrix:	Solid	Laboratory ID:	18L0510-06	File ID:	121918S-028		
Sampled:	12/12/18 12:00	Prepared:	12/19/18 07:45	Analyzed:	12/19/18 11:19		
Solids:	85.79	Preparation:	7471_HG_PREP	Dilution:	1		
Initial/Final:	0.5184 g / 50 ml						
Batch:	B8L0599	Sequence:	S8L0281	Calibration:	EL80049	Instrument:	Hg Hydra

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7439-97-6	Mercury	0.115	0.022	0.045	0.067	

*MwHofa*

# 1 - FORM I ANALYSIS DATA SHEET

18111131

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0510-07
Sampled:	12/12/18 12:10	Prepared:	12/17/18 08:42
Solids:	91.94	Preparation:	3050_METALS_PREP
Initial/Final:	2.0127 g / 50 ml	Dilution:	100
Batch:	B8L0514	Sequence:	S8L0264
		Calibration:	EL80047
		Instrument:	ICP-AES 7400

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7429-90-5	Aluminum	12900	254	540	676	<i>DL</i>
7440-36-0	<i>Antimony</i>		48.6	108	135	U
7440-38-2	<i>Arsenic</i>		48.6	108	135	U
7440-39-3	<i>Barium</i>	73.5	37.8	108	135	<i>J, DL</i>
7440-41-7	<i>Beryllium</i>		5.40	10.8	13.5	U
7440-43-9	<i>Cadmium</i>		4.86	10.8	13.5	U
7440-70-2	<i>Calcium</i>	8380	270	540	676	<i>D, B</i>
7440-47-3	<i>Chromium</i>		29.7	108	135	U
7440-48-4	<i>Cobalt</i>		8.11	27.0	135	U
7440-50-8	<i>Copper</i>		52.4	108	135	<i>U</i>
7439-89-6	<i>Iron</i>	18000	99.4	216	270	<i>D, B</i>
7439-92-1	<i>Lead</i>	55.7	54.0	108	135	<i>J, DL</i>
7439-95-4	<i>Magnesium</i>	5660	184	540	676	<i>J</i>
7439-96-5	<i>Manganese</i>	287	27.0	54.0	135	<i>DL</i>
7440-02-0	<i>Nickel</i>		48.6	108	135	U
7440-09-7	<i>Potassium</i>	755	227	540	676	<i>D, B</i>
7782-49-2	<i>Selenium</i>		48.6	108	135	U
7440-22-4	<i>Silver</i>		8.65	27.0	135	U
7440-23-5	<i>Sodium</i>	400	243	540	676	<i>J, DL</i>
7440-28-0	<i>Thallium</i>		35.7	108	135	U
7440-62-2	<i>Vanadium</i>	41.3	32.4	108	135	<i>J, DL</i>
7440-66-6	<i>Zinc</i>		54.0	108	135	<i>U</i>

Italicized = secondary result

*MW H019*

# 1 - FORM I ANALYSIS DATA SHEET

18111131

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0510-07RE1
		File ID:	12182018-049
Sampled:	12/12/18 12:10	Prepared:	12/17/18 08:42
		Analyzed:	12/18/18 13:34
Solids:	91.94	Preparation:	3050_METALS_PREP
		Dilution:	10
Initial/Final:	2.0127 g / 50 ml		
Batch:	B8L0514	Sequence:	S8L0264
		Calibration:	EL80047
		Instrument:	ICP-AES 7400

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7429-90-5	<i>Aluminum</i>	13200	25.4	54.0	67.6	D, E, JL
7440-36-0	<i>Antimony</i>		4.86	10.8	13.5	U
7440-38-2	<i>Arsenic</i>	9.43	4.86	10.8	13.5	J, JL, JQ
7440-39-3	<i>Barium</i>	75.6	3.78	10.8	13.5	DM, JL
7440-41-7	<i>Beryllium</i>		0.540	1.08	1.35	U, JL
7440-43-9	<del>Cadmium</del>		0.486	1.08	1.35	U, JL
7440-70-2	<i>Calcium</i>	8380	27.0	54.0	67.6	D, B, JL
7440-47-3	<del>Chromium</del>	28.1	2.97	10.8	13.5	DM, JL
7440-48-4	<del>Cobalt</del>	8.51	0.811	2.70	13.5	J, JL, Q
7440-50-8	<i>Copper</i>	27.4	5.24	10.8	13.5	DM
7439-89-6	<i>Iron</i>	18000	9.94	21.6	27.0	D, B, JL
7439-92-1	<i>Lead</i>	58.1	5.40	10.8	13.5	D, JL
7439-95-4	<i>Magnesium</i>	5680	18.4	54.0	67.6	D, JK
7439-96-5	<del>Manganese</del>	290	2.70	5.40	13.5	D
7440-02-0	<i>Nickel</i>	34.5	4.86	10.8	13.5	DM
7440-09-7	<i>Potassium</i>	797	22.7	54.0	67.6	D, B, JL
7782-49-2	<i>Selenium</i>		4.86	10.8	13.5	U, JL
7440-22-4	<i>Silver</i>	3.24	0.865	2.70	13.5	J, D, Q
7440-23-5	<del>Sodium</del>	429	24.3	54.0	67.6	DM
7440-28-0	<i>Thallium</i>		3.57	10.8	13.5	U
7440-62-2	<i>Vanadium</i>	42.3	3.24	10.8	13.5	D
7440-66-6	<i>Zinc</i>	47.8	5.40	10.8	13.5	D, JL

Italicized = secondary result

JMW/Hofg

# 1 - FORM I

## ANALYSIS DATA SHEET

18111131

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0510-07RE2
Sampled:	12/12/18 12:10	Prepared:	12/17/18 08:42
Solids:	91.94	Preparation:	3050_METALS_PREP
Initial/Final:	2.0127 g / 50 ml	Dilution:	1
Batch:	B8L0514	Sequence:	S8L0264
		Calibration:	EL80047
		Instrument:	ICP-AES 7400

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7429-90-5	<i>Aluminum</i>	<i>13500</i>	2.54	5.40	6.76	<i>5/1 JL</i>
7440-36-0	Antimony		0.486	1.08	1.35	<i>U JL</i>
7440-38-2	Arsenic	8.34	0.486	1.08	1.35	
7440-39-3	Barium	76.7	0.378	1.08	1.35	<i>JH</i>
7440-41-7	<i>Beryllium</i>	<i>27000000</i>	<i>0.0540</i>	<i>0.108</i>	<i>0.135</i>	<i>5/1 JL</i>
7440-43-9	Cadmium	0.376	0.0486	0.108	0.135	
7440-70-2	<i>Calcium</i>	<i>7840</i>	<i>2.70</i>	<i>5.40</i>	<i>6.76</i>	<i>B, E, JL</i>
7440-47-3	Chromium	27.5	0.297	1.08	1.35	
7440-48-4	<i>Cobalt</i>	<i>8.11</i>	<i>0.0811</i>	<i>0.270</i>	<i>1.35</i>	<i>U</i>
7440-50-8	Copper	26.4	0.524	1.08	1.35	<i>JL</i>
7439-89-6	<i>Iron</i>	<i>15200</i>	<i>0.994</i>	<i>2.76</i>	<i>2.70</i>	<i>B, E, JL</i>
7439-92-1	Lead	51.4	0.540	1.08	1.35	<i>JK</i>
7439-95-4	<i>Magnesium</i>	<i>5440</i>	<i>1.84</i>	<i>5.40</i>	<i>6.76</i>	<i>5/1 JL</i>
7439-96-5	Manganese	266	0.270	0.540	1.35	
7440-02-0	<i>Nickel</i>	<i>30.6</i>	<i>0.486</i>	<i>1.08</i>	<i>1.35</i>	
7440-09-7	<i>Potassium</i>	<i>811</i>	<i>2.27</i>	<i>5.40</i>	<i>6.76</i>	<i>B, E, JL</i>
7782-49-2	Selenium		0.486	1.08	1.35	<i>U</i>
7440-22-4	<i>Silver</i>	<i>2.84</i>	<i>0.0865</i>	<i>0.270</i>	<i>1.35</i>	<i>U</i>
7440-23-5	Sodium	441	2.43	5.40	6.76	
7440-28-0	Thallium	2.68	0.357	1.08	1.35	
7440-62-2	Vanadium	40.5	0.324	1.08	1.35	
7440-66-6	Zinc	46.5	0.540	1.08	1.35	

Italicized = secondary result

*John H. H. H.*



**1 - FORM I**  
**ANALYSIS DATA SHEET**

18111131

Laboratory:	Environmental Monitoring and Tech			SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.			Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0510-07RE3	File ID:	12192018-049
Sampled:	12/12/18 12:10	Prepared:	12/17/18 08:42	Analyzed:	12/19/18 18:27
Solids:	91.94	Preparation:	3050_METALS_PREP	Dilution:	1
Initial/Final:	2.0127 g / 50 ml				
Batch:	B8L0514	Sequence:	S8L0288	Calibration:	EL80050
				Instrument:	ICP-AES 7400

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7440-48-4	Cobalt	8.26	0.0811	0.270	1.35	
7440-02-0	Nickel	31.1	0.486	1.08	1.35	
7440-09-7	Potassium	802	2.27	5.40	6.76	

Italicized = secondary result

*MW H019*

**1 - FORM I**  
**ANALYSIS DATA SHEET**

18111131

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set				
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01				
Matrix:	Solid	Laboratory ID:	18L0510-07	File ID:	121918S-031		
Sampled:	12/12/18 12:10	Prepared:	12/19/18 07:45	Analyzed:	12/19/18 11:31		
Solids:	91.94	Preparation:	7471_HG_PREP	Dilution:	1		
Initial/Final:	0.5399 g / 50 ml						
Batch:	B8L0599	Sequence:	S8L0281	Calibration:	EL80049	Instrument:	Hg Hydra

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7439-97-6	Mercury	0.034	0.020	0.040	0.060	JQ

*M. Hogg*

# 1 - FORM I ANALYSIS DATA SHEET

18111132

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0510-08
Sampled:	12/12/18 14:30	Prepared:	12/17/18 08:42
Solids:	87.17	Preparation:	3050_METALS_PREP
Initial/Final:	2.2057 g / 50 ml	Dilution:	100
Batch:	B8L0514	Sequence:	S8L0264
		Calibration:	EL80047
		Instrument:	ICP-AES 7400

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7429-90-5	Aluminum	10100	244	520	650	<i>BTM JL</i>
7440-36-0	<i>Antimony</i>		46.8	104	130	<i>U</i>
7440-38-2	<i>Arsenic</i>		46.8	104	130	<i>U</i>
7440-39-3	<i>Barium</i>	52.8	36.4	104	130	<i>J, Am Q</i>
7440-41-7	<i>Beryllium</i>		5.20	10.4	13.0	<i>U</i>
7440-43-9	<i>Cadmium</i>		4.68	10.4	13.0	<i>U</i>
7440-70-2	<i>Calcium</i>	5530	260	520	650	<i>D, BTM</i>
7440-47-3	<i>Chromium</i>		28.6	104	130	<i>U</i>
7440-48-4	<i>Cobalt</i>		7.80	26.0	130	<i>U</i>
7440-50-8	<i>Copper</i>		50.4	104	130	<i>U</i>
7439-89-6	<i>Iron</i>	15800	95.7	208	260	<i>D, B, JL</i>
7439-92-1	<i>Lead</i>	78.3	52.0	104	130	<i>J, D, Am Q</i>
7439-95-4	<i>Magnesium</i>	4550	177	520	650	<i>D</i>
7439-96-5	<i>Manganese</i>	254	26.0	52.0	130	<i>Am</i>
7440-02-0	<i>Nickel</i>		46.8	104	130	<i>U</i>
7440-09-7	<i>Potassium</i>	507	218	520	650	<i>J, D, B, Am Q</i>
7782-49-2	<i>Selenium</i>		46.8	104	130	<i>U</i>
7440-22-4	<i>Silver</i>		8.32	26.0	130	<i>U</i>
7440-23-5	<i>Sodium</i>	288	234	520	650	<i>J, Am Q</i>
7440-28-0	<i>Thallium</i>		34.3	104	130	<i>U</i>
7440-62-2	<i>Vanadium</i>		31.2	104	130	<i>U</i>
7440-66-6	<i>Zinc</i>	91.8	52.0	104	130	<i>J, D, Am Q</i>

Italicized = secondary result

*Am Hot 9*

# 1 - FORM I ANALYSIS DATA SHEET

18111132

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0510-08RE1
		File ID:	12182018-050
Sampled:	12/12/18 14:30	Prepared:	12/17/18 08:42
		Analyzed:	12/18/18 13:38
Solids:	87.17	Preparation:	3050_METALS_PREP
		Dilution:	10
Initial/Final:	2.2057 g / 50 ml		
Batch:	B8L0514	Sequence:	S8L0264
		Calibration:	EL80047
		Instrument:	ICP-AES 7400

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7429-90-5	<i>Aluminum</i>	9570	24.4	52.0	65.0	<i>DM</i>
7440-36-0	<i>Antimony</i>		4.68	10.4	13.0	<i>U</i>
7440-38-2	<i>Arsenic</i>	8.40	4.68	10.4	13.0	<i>J. H. Q</i>
7440-39-3	<i>Barium</i>	50.7	3.64	10.4	13.0	<i>DM</i>
7440-41-7	<i>Beryllium</i>		0.520	1.04	1.30	<i>U JL</i>
7440-43-9	<i>Cadmium</i>		0.468	1.04	1.30	<i>U</i>
7440-70-2	<i>Calcium</i>	5180	26.0	52.0	65.0	<i>D. B. JL</i>
7440-47-3	<i>Chromium</i>	23.1	2.86	10.4	13.0	<i>DM</i>
7440-48-4	<i>Cobalt</i>	6.55	0.780	2.60	13.0	<i>J. H. Q</i>
7440-50-8	<i>Copper</i>	38.1	5.04	10.4	13.0	<i>P. H.</i>
7439-89-6	<i>Iron</i>	14800	9.57	20.8	26.0	<i>D. B. DM</i>
7439-92-1	<i>Lead</i>	76.0	5.20	10.4	13.0	<i>D. B. DM</i>
7439-95-4	<i>Magnesium</i>	4260	17.7	52.0	65.0	<i>D. JK</i>
7439-96-5	<i>Manganese</i>	241	2.60	5.20	13.0	<i>D.</i>
7440-02-0	<i>Nickel</i>	23.8	4.68	10.4	13.0	<i>DM</i>
7440-09-7	<i>Potassium</i>	514	21.8	52.0	65.0	<i>D. B. DM</i>
7782-49-2	<i>Selenium</i>		4.68	10.4	13.0	<i>U</i>
7440-22-4	<i>Silver</i>	2.94	0.832	2.60	13.0	<i>J. H. Q</i>
7440-23-5	<i>Sodium</i>	290	23.4	52.0	65.0	<i>DM</i>
7440-28-0	<i>Thallium</i>		3.43	10.4	13.0	<i>U</i>
7440-62-2	<i>Vanadium</i>	28.9	3.12	10.4	13.0	<i>D.</i>
7440-66-6	<i>Zinc</i>	92.5	5.20	10.4	13.0	<i>D.</i>

Italicized = secondary result

*Mr. Hote*

# 1 - FORM I ANALYSIS DATA SHEET

18111132

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0510-08RE2
Sampled:	12/12/18 14:30	Prepared:	12/17/18 08:42
Solids:	87.17	Preparation:	3050_METALS_PREP
Initial/Final:	2.2057 g / 50 ml	Dilution:	1
Batch:	B8L0514	Sequence:	S8L0264
		Calibration:	EL80047
		Instrument:	ICP-AES 7400

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7429-90-5	<del>Aluminum</del>	<del>9520</del>	<del>2.44</del>	<del>5.20</del>	<del>6.50</del>	<del>Am JH</del>
7440-36-0	Antimony		0.468	1.04	1.30	U JL
7440-38-2	Arsenic	8.78	0.468	1.04	1.30	
7440-39-3	Barium	49.4	0.364	1.04	1.30	JH
7440-41-7	<del>Beryllium</del>	<del>26000000</del>	<del>0.0520</del>	<del>0.104</del>	<del>0.130</del>	<del>Am JH</del>
7440-43-9	Cadmium	0.533	0.0468	0.104	0.130	
7440-70-2	<del>Calcium</del>	<del>4820</del>	<del>2.60</del>	<del>5.20</del>	<del>6.50</del>	<del>B, E, JH</del>
7440-47-3	Chromium	22.3	0.286	1.04	1.30	
7440-48-4	<del>Cobalt</del>	<del>6.29</del>	<del>0.0760</del>	<del>0.260</del>	<del>1.30</del>	<del>Am</del>
7440-50-8	Copper	36.8	0.504	1.04	1.30	JL
7439-89-6	<del>Iron</del>	<del>12700</del>	<del>0.957</del>	<del>2.08</del>	<del>2.60</del>	<del>B, E, JH</del>
7439-92-1	Lead	69.5	0.520	1.04	1.30	JK
7439-95-4	<del>Magnesium</del>	<del>4020</del>	<del>1.77</del>	<del>5.20</del>	<del>6.50</del>	<del>Am JH</del>
7439-96-5	Manganese	219	0.260	0.520	1.30	
7440-02-0	<del>Nickel</del>	<del>21.6</del>	<del>0.468</del>	<del>1.04</del>	<del>1.30</del>	
7440-09-7	Potassium	514	2.18	5.20	6.50	Am JH
7782-49-2	Selenium		0.468	1.04	1.30	U
7440-22-4	<del>Silver</del>	<del>2.23</del>	<del>0.0832</del>	<del>0.260</del>	<del>1.30</del>	<del>Am</del>
7440-23-5	Sodium	289	2.34	5.20	6.50	
7440-28-0	Thallium	1.75	0.343	1.04	1.30	
7440-62-2	Vanadium	27.4	0.312	1.04	1.30	
7440-66-6	Zinc	87.9	0.520	1.04	1.30	

Italicized = secondary result

Am H-19

# 1 - FORM I

## ANALYSIS DATA SHEET

18111132

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0510-08RE3
		File ID:	12192018-050
Sampled:	12/12/18 14:30	Prepared:	12/17/18 08:42
		Analyzed:	12/19/18 18:32
Solids:	87.17	Preparation:	3050_METALS_PREP
		Dilution:	1
Initial/Final:	2.2057 g / 50 ml		
Batch:	B8L0514	Sequence:	S8L0288
		Calibration:	EL80050
		Instrument:	ICP-AES 7400

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7440-48-4	Cobalt	6.43	0.0780	0.260	1.30	
7440-02-0	Nickel	21.9	0.468	1.04	1.30	
7440-09-7	Potassium	530	2.18	5.20	6.50	<i>Bmr</i>

Italicized = secondary result

*MWH-19*

**1 - FORM I**  
**ANALYSIS DATA SHEET**

18111132

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set				
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01				
Matrix:	Solid	Laboratory ID:	18L0510-08	File ID:	121918S-032		
Sampled:	12/12/18 14:30	Prepared:	12/19/18 07:45	Analyzed:	12/19/18 11:34		
Solids:	87.17	Preparation:	7471_HG_PREP	Dilution:	1		
Initial/Final:	0.5403 g / 50 ml						
Batch:	B8L0599	Sequence:	S8L0281	Calibration:	EL80049	Instrument:	Hg Hydra

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7439-97-6	Mercury	0.045	0.021	0.042	0.064	J Q

*M. H. 19*

# 1 - FORM I ANALYSIS DATA SHEET

18111133

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0510-09
Sampled:	12/12/18 15:00	Prepared:	12/17/18 08:42
Solids:	81.84	Preparation:	3050_METALS_PREP
Initial/Final:	2.0921 g / 50 ml	Dilution:	100
Batch:	B8L0514	Sequence:	S8L0264
		Calibration:	EL80047
		Instrument:	ICP-AES 7400

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7429-90-5	Aluminum	20400	274	584	730	<i>DL</i> <i>JL</i>
7440-36-0	<i>Antimony</i>		52.6	117	146	U
7440-38-2	<i>Arsenic</i>		52.6	117	146	U
7440-39-3	<i>Barium</i>	83.8	40.9	117	146	<i>J, D, B</i> <i>MLQ</i>
7440-41-7	<i>Beryllium</i>		5.84	11.7	14.6	U
7440-43-9	<i>Cadmium</i>		5.26	11.7	14.6	U
7440-70-2	<i>Calcium</i>	3130	292	584	730	<del>D, B, ML</del>
7440-47-3	<i>Chromium</i>		32.1	117	146	U
7440-48-4	<i>Cobalt</i>		8.76	29.2	146	U
7440-50-8	<i>Copper</i>		56.7	117	146	U <i>ML</i>
7439-89-6	Iron	18800	107	234	292	<del>D, B, ML</del> <i>JL</i>
7439-92-1	<i>Lead</i>		58.4	117	146	U
7439-95-4	<i>Magnesium</i>	4480	199	584	730	<i>D</i>
7439-96-5	<i>Manganese</i>	341	29.2	58.4	146	<i>D, ML</i>
7440-02-0	<i>Nickel</i>		52.6	117	146	U
7440-09-7	<i>Potassium</i>	512	245	584	730	<i>J, D, B</i> <i>MLQ</i>
7782-49-2	<i>Selenium</i>		52.6	117	146	U
7440-22-4	<i>Silver</i>		9.34	29.2	146	U
7440-23-5	<i>Sodium</i>		263	584	730	U
7440-28-0	<i>Thallium</i>		38.5	117	146	U
7440-62-2	<i>Vanadium</i>	44.4	35.0	117	146	<i>J, D, B</i> <i>MLQ</i>
7440-66-6	<i>Zinc</i>		58.4	117	146	U

Italicized = secondary result

*MLH 10/19*



# 1 - FORM I ANALYSIS DATA SHEET

18111133

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0510-09RE1
Sampled:	12/12/18 15:00	Prepared:	12/17/18 08:42
Solids:	81.84	Preparation:	3050_METALS_PREP
Initial/Final:	2.0921 g / 50 ml	Dilution:	10
Batch:	B8L0514	Sequence:	S8L0264
		Calibration:	EL80047
		Instrument:	ICP-AES 7400

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7429-90-5	<i>Aluminum</i>	21800	27.4	58.4	73.0	D, E, M, JL
7440-36-0	<i>Antimony</i>		5.26	11.7	14.6	U
7440-38-2	<i>Arsenic</i>	11.1	5.26	11.7	14.6	J, E, M, Q
7440-39-3	<i>Barium</i>	90.2	4.09	11.7	14.6	D, M, JL
7440-41-7	<i>Beryllium</i>		0.584	1.17	1.46	U
7440-43-9	<i>Cadmium</i>		0.526	1.17	1.46	U
7440-70-2	<i>Calcium</i>	3330	29.2	58.4	73.0	D, B, M, JL
7440-47-3	<i>Chromium</i>	26.7	3.21	11.7	14.6	D, M
7440-48-4	<i>Cobalt</i>	8.76	0.876	2.92	14.6	J, E, M, Q
7440-50-8	<i>Copper</i>	29.8	5.67	11.7	14.6	D, M
7439-89-6	<i>Iron</i>	19900	10.7	23.4	29.2	D, B, M
7439-92-1	<i>Lead</i>	10.5	5.84	11.7	14.6	J, E, M, Q
7439-95-4	<i>Magnesium</i>	4730	19.9	58.4	73.0	D, JK
7439-96-5	<i>Manganese</i>	362	2.92	5.84	14.6	D
7440-02-0	<i>Nickel</i>	27.8	5.26	11.7	14.6	D, M
7440-09-7	<i>Potassium</i>	570	24.5	58.4	73.0	D, B, M
7782-49-2	<i>Selenium</i>		5.26	11.7	14.6	U
7440-22-4	<i>Silver</i>	3.53	0.934	2.92	14.6	J, E, M, Q
7440-23-5	<i>Sodium</i>	141	26.3	58.4	73.0	D, M
7440-28-0	<i>Thallium</i>		3.85	11.7	14.6	U
7440-62-2	<i>Vanadium</i>	47.7	3.50	11.7	14.6	D
7440-66-6	<i>Zinc</i>	35.0	5.84	11.7	14.6	D

Italicized = secondary result

Mw H019

# 1 - FORM I ANALYSIS DATA SHEET

18111133

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0510-09RE2
		File ID:	12182018-063
Sampled:	12/12/18 15:00	Prepared:	12/17/18 08:42
		Analyzed:	12/18/18 14:33
Solids:	81.84	Preparation:	3050_METALS_PREP
		Dilution:	1
Initial/Final:	2.0921 g / 50 ml		
Batch:	B8L0514	Sequence:	S8L0264
		Calibration:	EL80047
		Instrument:	ICP-AES 7400

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7429-90-5	<del>Aluminum</del>	<del>21100</del>	<del>2.74</del>	<del>5.84</del>	<del>7.30</del>	<del>JK</del>
7440-36-0	Antimony		0.526	1.17	1.46	U
7440-38-2	Arsenic	8.28	0.526	1.17	1.46	
7440-39-3	Barium	86.4	0.409	1.17	1.46	JH
7440-41-7	<del>Beryllium</del>	<del>29200000</del>	<del>0.0584</del>	<del>0.117</del>	<del>0.146</del>	<del>JK</del>
7440-43-9	Cadmium	0.347	0.0526	0.117	0.146	
7440-70-2	<del>Calcium</del>	<del>3030</del>	<del>2.02</del>	<del>5.84</del>	<del>7.30</del>	<del>JK</del>
7440-47-3	Chromium	25.5	0.321	1.17	1.46	
7440-48-4	<del>Cobalt</del>	<del>8.36</del>	<del>0.0876</del>	<del>0.292</del>	<del>1.46</del>	<del>JK</del>
7440-50-8	Copper	27.7	0.567	1.17	1.46	
7439-89-6	<del>Iron</del>	<del>16400</del>	<del>1.07</del>	<del>2.34</del>	<del>2.92</del>	<del>JK</del>
7439-92-1	Lead	11.2	0.584	1.17	1.46	
7439-95-4	<del>Magnesium</del>	<del>4330</del>	<del>1.99</del>	<del>5.84</del>	<del>7.30</del>	<del>JK</del>
7439-96-5	Manganese	325	0.292	0.584	1.46	
7440-02-0	<del>Nickel</del>	<del>25.2</del>	<del>0.526</del>	<del>1.17</del>	<del>1.46</del>	<del>JK</del>
7440-09-7	Potassium	553	2.45	5.84	7.30	
7782-49-2	Selenium		0.526	1.17	1.46	U
7440-22-4	<del>Silver</del>	<del>3.02</del>	<del>0.0934</del>	<del>0.292</del>	<del>1.46</del>	<del>JK</del>
7440-23-5	Sodium	147	2.63	5.84	7.30	
7440-28-0	Thallium	3.21	0.385	1.17	1.46	
7440-62-2	Vanadium	43.8	0.350	1.17	1.46	
7440-66-6	Zinc	33.5	0.584	1.17	1.46	

Italicized = secondary result

MWH049

**1 - FORM I**  
**ANALYSIS DATA SHEET**

18111133

Laboratory:	Environmental Monitoring and Tech			SDG:	10RB-2nd Set	
Client:	Ecology and Environment, Inc.			Project:	1004530.0470.001.01	
Matrix:	Solid	Laboratory ID:	18L0510-09RE3	File ID:	12192018-051	
Sampled:	12/12/18 15:00	Prepared:	12/17/18 08:42	Analyzed:	12/19/18 18:36	
Solids:	81.84	Preparation:	3050_METALS_PREP	Dilution:	1	
Initial/Final:	2.0921 g / 50 ml					
Batch:	B8L0514	Sequence:	S8L0288	Calibration:	EL80050	Instrument: ICP-AES 7400

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7440-48-4	Cobalt	8.56	0.0876	0.292	1.46	
7440-02-0	Nickel	25.5	0.526	1.17	1.46	
7440-09-7	Potassium	549	2.45	5.84	7.30	<i>Am</i>

Italicized = secondary result

*John H. H. 9*

**1 - FORM I**  
**ANALYSIS DATA SHEET**

18111133

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set				
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01				
Matrix:	Solid	Laboratory ID:	18L0510-09	File ID:	121918S-033		
Sampled:	12/12/18 15:00	Prepared:	12/19/18 07:45	Analyzed:	12/19/18 11:37		
Solids:	81.84	Preparation:	7471_HG_PREP	Dilution:	1		
Initial/Final:	0.5346 g / 50 ml						
Batch:	B8L0599	Sequence:	S8L0281	Calibration:	EL80049	Instrument:	Hg Hydra

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7439-97-6	Mercury	0.063	0.023	0.046	0.069	J Q

MW H019

# 1 - FORM I ANALYSIS DATA SHEET

18111134

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0510-10
Sampled:	12/12/18 15:00	Prepared:	12/17/18 08:42
Solids:	83.19	Preparation:	3050_METALS_PREP
Initial/Final:	2.0923 g / 50 ml	Dilution:	100
Batch:	B8L0514	Sequence:	S8L0264
		Calibration:	EL80047
		Instrument:	ICP-AES 7400

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7429-90-5	Aluminum	17800	270	575	718	<i>DM JL</i>
7440-36-0	<i>Antimony</i>		51.7	115	144	U
7440-38-2	<i>Arsenic</i>		51.7	115	144	U
7440-39-3	<i>Barium</i>	66.4	40.2	115	144	<i>J, DM Q</i>
7440-41-7	<i>Beryllium</i>		5.75	11.5	14.4	U
7440-43-9	<i>Cadmium</i>		5.17	11.5	14.4	U
7440-70-2	<i>Calcium</i>	2560	287	575	718	<i>D, B JL</i>
7440-47-3	<i>Chromium</i>		31.6	115	144	U
7440-48-4	<i>Cobalt</i>		8.62	28.7	144	U
7440-50-8	<i>Copper</i>		55.7	115	144	<i>U DM</i>
7439-89-6	Iron	16300	106	230	287	<i>D, B JL</i>
7439-92-1	<i>Lead</i>		57.5	115	144	U
7439-95-4	<i>Magnesium</i>	3880	195	575	718	<i>D</i>
7439-96-5	<i>Manganese</i>	295	28.7	57.5	144	<i>DM</i>
7440-02-0	<i>Nickel</i>		51.7	115	144	U
7440-09-7	<i>Potassium</i>	468	241	575	718	<i>J, D, B Q</i>
7782-49-2	<i>Selenium</i>		51.7	115	144	U
7440-22-4	<i>Silver</i>		9.19	28.7	144	U
7440-23-5	<i>Sodium</i>		259	575	718	U
7440-28-0	<i>Thallium</i>		37.9	115	144	U
7440-62-2	<i>Vanadium</i>		34.5	115	144	U
7440-66-6	<i>Zinc</i>		57.5	115	144	<i>U DM</i>

Italicized = secondary result

*Mr Ho/q*

# 1 - FORM I ANALYSIS DATA SHEET

18111134

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0510-10RE1
Sampled:	12/12/18 15:00	Prepared:	12/17/18 08:42
Solids:	83.19	Preparation:	3050_METALS_PREP
Initial/Final:	2.0923 g / 50 ml	Dilution:	10
Batch:	B8L0514	Sequence:	S8L0264
		Calibration:	EL80047
		Instrument:	ICP-AES 7400

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7429-90-5	<del>Aluminum</del>	19400	27.0	57.5	71.8	D, B, <del>mu</del> JL
7440-36-0	Antimony		5.17	11.5	14.4	U
7440-38-2	Arsenic	9.71	5.17	11.5	14.4	J, <del>mu</del> Q
7440-39-3	Barium	74.2	4.02	11.5	14.4	<del>mu</del>
7440-41-7	Beryllium		0.575	1.15	1.44	U JL
7440-43-9	<del>Cadmium</del>		0.517	1.15	1.44	U <del>mu</del>
7440-70-2	Calcium	2800	28.7	57.5	71.8	D, B, <del>mu</del> JL
7440-47-3	<del>Chromium</del>	23.5	3.16	11.5	14.4	<del>mu</del>
7440-48-4	Cobalt	7.50	0.862	2.87	14.4	J, <del>mu</del> Q
7440-50-8	Copper	27.1	5.57	11.5	14.4	<del>mu</del>
7439-89-6	Iron	17600	10.6	23.0	28.7	D, B, <del>mu</del>
7439-92-1	Lead	10.3	5.75	11.5	14.4	J, <del>mu</del> Q
7439-95-4	Magnesium	4210	19.5	57.5	71.8	D JK
7439-96-5	<del>Manganese</del>	322	2.87	5.75	14.4	D
7440-02-0	Nickel	27.0	5.17	11.5	14.4	<del>mu</del>
7440-09-7	Potassium	496	24.1	57.5	71.8	D, B, <del>mu</del>
7782-49-2	Selenium		5.17	11.5	14.4	U <del>mu</del>
7440-22-4	Silver	3.22	0.919	2.87	14.4	J, <del>mu</del> Q
7440-23-5	<del>Sodium</del>	129	25.9	57.5	71.8	<del>mu</del>
7440-28-0	Thallium		3.79	11.5	14.4	U
7440-62-2	Vanadium	40.1	3.45	11.5	14.4	D
7440-66-6	Zinc	32.3	5.75	11.5	14.4	<del>mu</del>

Italicized = secondary result

*MWH019*

# 1 - FORM I ANALYSIS DATA SHEET

18111134

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0510-10RE2
		File ID:	12182018-064
Sampled:	12/12/18 15:00	Prepared:	12/17/18 08:42
		Analyzed:	12/18/18 14:38
Solids:	83.19	Preparation:	3050_METALS_PREP
		Dilution:	1
Initial/Final:	2.0923 g / 50 ml		
Batch:	B8L0514	Sequence:	S8L0264
		Calibration:	EL80047
		Instrument:	ICP-AES 7400

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7429-90-5	<del>Aluminum</del>	<del>19000</del>	<del>2.70</del>	<del>5.75</del>	<del>7.18</del>	<del>JK</del>
7440-36-0	Antimony		0.517	1.15	1.44	U
7440-38-2	Arsenic	9.37	0.517	1.15	1.44	
7440-39-3	Barium	71.8	0.402	1.15	1.44	JH
7440-41-7	<del>Beryllium</del>	<del>28700000</del>	<del>0.0575</del>	<del>0.115</del>	<del>0.144</del>	<del>JK</del>
7440-43-9	Cadmium	0.293	0.0517	0.115	0.144	
7440-70-2	<del>Calcium</del>	<del>2560</del>	<del>2.87</del>	<del>5.75</del>	<del>7.18</del>	<del>JK</del>
7440-47-3	Chromium	22.6	0.316	1.15	1.44	
7440-48-4	<del>Cobalt</del>	<del>7.31</del>	<del>0.0862</del>	<del>0.287</del>	<del>1.44</del>	<del>JK</del>
7440-50-8	Copper	24.8	0.557	1.15	1.44	JK
7439-89-6	<del>Iron</del>	<del>14900</del>	<del>1.06</del>	<del>2.30</del>	<del>2.87</del>	<del>JK</del>
7439-92-1	Lead	9.94	0.575	1.15	1.44	JK
7439-95-4	<del>Magnesium</del>	<del>3960</del>	<del>1.95</del>	<del>5.75</del>	<del>7.18</del>	<del>JK</del>
7439-96-5	Manganese	292	0.287	0.575	1.44	
7440-02-0	<del>Nickel</del>	<del>24.6</del>	<del>0.517</del>	<del>1.15</del>	<del>1.44</del>	<del>JK</del>
7440-09-7	Potassium	495	2.41	5.75	7.18	<del>JK</del>
7782-49-2	Selenium		0.517	1.15	1.44	U
7440-22-4	<del>Silver</del>	<del>2.61</del>	<del>0.0919</del>	<del>0.287</del>	<del>1.44</del>	<del>JK</del>
7440-23-5	Sodium	129	2.59	5.75	7.18	
7440-28-0	Thallium	2.41	0.379	1.15	1.44	
7440-62-2	Vanadium	37.6	0.345	1.15	1.44	
7440-66-6	Zinc	31.1	0.575	1.15	1.44	

Italicized = secondary result

MWHolq

# 1 - FORM I

## ANALYSIS DATA SHEET

18111134

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0510-10RE3
		File ID:	12192018-056
Sampled:	12/12/18 15:00	Prepared:	12/17/18 08:42
		Analyzed:	12/19/18 18:57
Solids:	83.19	Preparation:	3050_METALS_PREP
		Dilution:	1
Initial/Final:	2.0923 g / 50 ml		
Batch:	B8L0514	Sequence:	S8L0288
		Calibration:	EL80050
		Instrument:	ICP-AES 7400

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7440-48-4	Cobalt	7.60	0.0862	0.287	1.44	
7440-02-0	Nickel	25.4	0.517	1.15	1.44	
7440-09-7	Potassium	502	2.41	5.75	7.18	

Italicized = secondary result

*Mu/Hofg*



**1 - FORM I**  
**ANALYSIS DATA SHEET**

18111134

Laboratory:	Environmental Monitoring and Tech			SDG:	10RB-2nd Set	
Client:	Ecology and Environment, Inc.			Project:	1004530.0470.001.01	
Matrix:	Solid	Laboratory ID:	18L0510-10	File ID:	121918S-034	
Sampled:	12/12/18 15:00	Prepared:	12/19/18 07:45	Analyzed:	12/19/18 11:39	
Solids:	83.19	Preparation:	7471_HG_PREP	Dilution:	1	
Initial/Final:	0.529 g / 50 ml					
Batch:	B8L0599	Sequence:	S8L0281	Calibration:	EL80049	Instrument: Hg Hydra

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7439-97-6	Mercury	0.056	0.023	0.045	0.068	J <sup>Q</sup>

*Mw Hoka*

# 1 - FORM I ANALYSIS DATA SHEET

18111401

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Water	Laboratory ID:	18L0444-01
		File ID:	121718A.xml-024
Sampled:	12/11/18 08:58	Prepared:	12/14/18 13:34
		Analyzed:	12/17/18 15:14
Solids:		Preparation:	3015_METALS_PREP_M: Dilution: 5
Initial/Final:	40 ml / 50 ml		
Batch:	B8L0487	Sequence:	S8L0240
		Calibration:	EL80041
		Instrument:	ICP-MS ICAP Q

CAS NO.	COMPOUND	CONC. (mg/L)	MDL	LOD	RL	Q
7429-90-5	Aluminum	0.108	0.0250	0.100	0.125	J Q
7440-36-0	Antimony		0.00400	0.0100	0.0250	U
7440-38-2	Arsenic		0.00400	0.0100	0.0250	U
7440-39-3	Barium	0.0719	0.00350	0.0100	0.0250	
7440-41-7	Beryllium		0.000400	0.00100	0.00250	U
7440-43-9	Cadmium		0.000250	0.00100	0.00250	U
7440-70-2	<del>Calcium</del>	<del>94.0</del>	<del>0.0500</del>	<del>0.100</del>	<del>0.125</del>	<del>B, E, J</del>
7440-47-3	Chromium	0.00310	0.00250	0.0100	0.0250	J Q
7440-48-4	Cobalt		0.00300	0.0100	0.0250	U
7440-50-8	<del>Copper</del>	<del>0.00817</del>	<del>0.00250</del>	<del>0.0100</del>	<del>0.0250</del>	<del>J Q</del>
7439-89-6	Iron	0.239	0.0500	0.100	0.125	
7439-92-1	<del>Lead</del>	<del>0.000948</del>	<del>0.000400</del>	<del>0.00100</del>	<del>0.0250</del>	<del>J Q</del>
7439-95-4	Magnesium	20.9	0.0400	0.100	0.125	
7439-96-5	Manganese	0.101	0.00400	0.0100	0.0250	
7440-02-0	Nickel		0.00400	0.0100	0.0250	U
7440-09-7	<del>Potassium</del>	<del>48.0</del>	<del>0.0500</del>	<del>0.100</del>	<del>0.125</del>	<del>E, J</del>
7782-49-2	Selenium		0.00350	0.0100	0.0250	U
7440-22-4	<del>Silver</del>		<del>0.000400</del>	<del>0.00100</del>	<del>0.00250</del>	<del>U</del>
7440-23-5	Sodium	28.9	0.0500	0.100	0.125	
7440-28-0	Thallium		0.000350	0.0100	0.0250	U
7440-62-2	Vanadium		0.00400	0.0100	0.0250	U
7440-66-6	<del>Zinc</del>	<del>0.00980</del>	<del>0.00500</del>	<del>0.0200</del>	<del>0.0250</del>	<del>J, Q</del>

Italicized = secondary result

Jaw Hoi 9

# 1 - FORM I ANALYSIS DATA SHEET

18111401

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Water	Laboratory ID:	18L0444-01RE1
		File ID:	121718A.xml-049
Sampled:	12/11/18 08:58	Prepared:	12/14/18 13:34
		Analyzed:	12/17/18 16:02
Solids:		Preparation:	3015_METALS_PREP_M
		Dilution:	50
Initial/Final:	40 ml / 50 ml		
Batch:	B8L0487	Sequence:	S8L0240
		Calibration:	EL80041
		Instrument:	ICP-MS iCAP Q

CAS NO.	COMPOUND	CONC. (mg/L)	MDL	LOD	RL	Q
7429-90-5	<i>Aluminum</i>		0.250	1.00	1.25	U
7440-36-0	<i>Antimony</i>		0.0400	0.100	0.250	U
7440-38-2	<i>Arsenic</i>		0.0400	0.100	0.250	U
7440-39-3	<i>Barium</i>	0.0802	0.0350	0.100	0.250	J, D Q
7440-41-7	<i>Beryllium</i>	0.0201	0.00400	0.0100	0.0250	J, D Q
7440-43-9	<i>Cadmium</i>		0.00250	0.0100	0.0250	U
7440-70-2	<i>Calcium</i>	103	0.500	1.00	1.25	D, B Q
7440-47-3	<i>Chromium</i>		0.0250	0.100	0.250	U
7440-48-4	<i>Cobalt</i>		0.0300	0.100	0.250	U
7440-50-8	<i>Copper</i>		0.0250	0.100	0.250	U
7439-89-6	<i>Iron</i>		0.500	1.00	1.25	U
7439-92-1	<i>Lead</i>		0.00400	0.0100	0.250	U
7439-95-4	<i>Magnesium</i>	23.7	0.400	1.00	1.25	D, B Q
7439-96-5	<i>Manganese</i>	0.119	0.0400	0.100	0.250	J, D Q
7440-02-0	<i>Nickel</i>		0.0400	0.100	0.250	U
7440-09-7	<i>Potassium</i>	54.3	0.500	1.00	1.25	D, B Q
7782-49-2	<i>Selenium</i>		0.0350	0.100	0.250	U
7440-22-4	<i>Silver</i>		0.00400	0.0100	0.0250	U
7440-23-5	<i>Sodium</i>	33.2	0.500	1.00	1.25	D, B Q
7440-28-0	<i>Thallium</i>		0.00350	0.100	0.250	U
7440-62-2	<i>Vanadium</i>		0.0400	0.100	0.250	U
7440-66-6	<i>Zinc</i>		0.0500	0.200	0.250	U

Italicized = secondary result



M. H. G.

# 1 - FORM I

## ANALYSIS DATA SHEET

18111401

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Water	Laboratory ID:	18L0444-01RE2
		File ID:	121818.xml-024
Sampled:	12/11/18 08:58	Prepared:	12/14/18 13:34
		Analyzed:	12/18/18 10:36
Solids:		Preparation:	3015_METALS_PREP_M
		Dilution:	5
Initial/Final:	40 ml / 50 ml		
Batch:	B8L0487	Sequence:	S8L0249
		Calibration:	EL80044
		Instrument:	ICP-MS iCAP Q

CAS NO.	COMPOUND	CONC. (mg/L)	MDL	LOD	RL	Q
7440-50-8	Copper	0.00791	0.00250	0.0100	0.0250	J 
7439-92-1	Lead	0.00101	0.000400	0.00100	0.0250	J 
7440-22-4	Silver		0.000400	0.00100	0.00250	U
7440-66-6	Zinc		0.00500	0.0200	0.0250	U

Italicized = secondary result

*MuH019*

**1 - FORM I**  
**ANALYSIS DATA SHEET**

18111401

Laboratory:	Environmental Monitoring and Tech			SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.			Project:	1004530.0470.001.01
Matrix:	Water	Laboratory ID:	18L0444-01	File ID:	121418L1-012
Sampled:	12/11/18 08:58	Prepared:	12/14/18 07:30	Analyzed:	12/14/18 11:14
Solids:		Preparation:	245-7470_HG_PREP	Dilution:	1
Initial/Final:	50 ml / 50 ml				
Batch:	B8L0467	Sequence:	S8L0196	Calibration:	EL80036
				Instrument:	Hg Hydra

CAS NO.	COMPOUND	CONC. (mg/L)	MDL	LOD	RL	Q
<i>7439-97-6</i>	<i>Mercury</i>	<i>0.00010</i>	<i>0.00025</i>	<i>0.00050</i>	<i>U</i>	<i>mm</i>

Italicized = secondary result

*MWHofg*

**1 - FORM I**  
**ANALYSIS DATA SHEET**

18111401

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set				
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01				
Matrix:	Water	Laboratory ID:	18L0444-01RE1	File ID:	121818L-016		
Sampled:	12/11/18 08:58	Prepared:	12/18/18 07:30	Analyzed:	12/18/18 10:51		
Solids:		Preparation:	245-7470_HG_PREP	Dilution:	1		
Initial/Final:	50 ml / 50 ml						
Batch:	B8L0550	Sequence:	S8L0247	Calibration:	EL80043	Instrument:	Hg Hydra

CAS NO.	COMPOUND	CONC. (mg/L)	MDL	LOD	RL	Q
7439-97-6	Mercury		0.00010	0.00025	0.00050	U

*MW Ho-19*

# 1 - FORM I ANALYSIS DATA SHEET

18111402

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Water	Laboratory ID:	18L0444-02
		File ID:	121718A.xml-025
Sampled:	12/11/18 10:00	Prepared:	12/14/18 13:34
		Analyzed:	12/17/18 15:16
Solids:		Preparation:	3015_METALS_PREP_M: Dilution: 5
Initial/Final:	40 ml / 50 ml		
Batch:	B8L0487	Sequence:	S8L0240
		Calibration:	EL80041
		Instrument:	ICP-MS iCAP Q

CAS NO.	COMPOUND	CONC. (mg/L)	MDL	LOD	RL	Q
7429-90-5	Aluminum	0.0530	0.0250	0.100	0.125	JQ
7440-36-0	Antimony		0.00400	0.0100	0.0250	U
7440-38-2	Arsenic		0.00400	0.0100	0.0250	U
7440-39-3	Barium	0.0694	0.00350	0.0100	0.0250	
7440-41-7	Beryllium		0.000400	0.00100	0.00250	U
7440-43-9	Cadmium		0.000250	0.00100	0.00250	U
7440-70-2	<del>Calcium</del>	<del>89.6</del>	<del>0.0500</del>	<del>0.100</del>	<del>0.125</del>	<del>B.F. JL</del>
7440-47-3	Chromium	0.00277	0.00250	0.0100	0.0250	JQ
7440-48-4	Cobalt		0.00300	0.0100	0.0250	U
7440-50-8	<del>Copper</del>	<del>0.00802</del>	<del>0.00250</del>	<del>0.0100</del>	<del>0.0250</del>	<del>JQ</del>
7439-89-6	Iron	0.0847	0.0500	0.100	0.125	JQ
7439-92-1	<del>Lead</del>	<del>0.000430</del>	<del>0.000400</del>	<del>0.00100</del>	<del>0.0250</del>	<del>JQ</del>
7439-95-4	Magnesium	19.7	0.0400	0.100	0.125	
7439-96-5	Manganese	0.0245	0.00400	0.0100	0.0250	JQ
7440-02-0	Nickel		0.00400	0.0100	0.0250	U
7440-09-7	<del>Potassium</del>	<del>43.7</del>	<del>0.0500</del>	<del>0.100</del>	<del>0.125</del>	<del>E.F. JL</del>
7782-49-2	Selenium		0.00350	0.0100	0.0250	U
7440-22-4	<del>Silver</del>		<del>0.000400</del>	<del>0.00100</del>	<del>0.00250</del>	<del>U</del>
7440-23-5	Sodium	27.6	0.0500	0.100	0.125	
7440-28-0	Thallium		0.000350	0.0100	0.0250	U
7440-62-2	Vanadium		0.00400	0.0100	0.0250	U
7440-66-6	<del>Zinc</del>	<del>0.00933</del>	<del>0.00500</del>	<del>0.0200</del>	<del>0.0250</del>	<del>JQ</del>

Italicized = secondary result

*John H. 19*

# 1 - FORM I

## ANALYSIS DATA SHEET

18111402

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Water	Laboratory ID:	18L0444-02RE1
		File ID:	121718A.xml-050
Sampled:	12/11/18 10:00	Prepared:	12/14/18 13:34
		Analyzed:	12/17/18 16:03
Solids:		Preparation:	3015_METALS_PREP_M: Dilution: 50
Initial/Final:	40 ml / 50 ml		
Batch:	B8L0487	Sequence:	S8L0240
		Calibration:	EL80041
		Instrument:	ICP-MS iCAP Q

CAS NO.	COMPOUND	CONC. (mg/L)	MDL	LOD	RL	Q
7429-90-5	<i>Aluminum</i>		0.250	1.00	1.25	U
7440-36-0	<i>Antimony</i>		0.0400	0.100	0.250	U
7440-38-2	<i>Arsenic</i>		0.0400	0.100	0.250	U
7440-39-3	<i>Barium</i>	0.0730	0.0350	0.100	0.250	J, D Q
7440-41-7	<i>Beryllium</i>	0.0181	0.00400	0.0100	0.0250	J, D Q
7440-43-9	<i>Cadmium</i>		0.00250	0.0100	0.0250	U
7440-70-2	<i>Calcium</i>	91.9	0.500	1.00	1.25	D, B
7440-47-3	<i>Chromium</i>		0.0250	0.100	0.250	U
7440-48-4	<i>Cobalt</i>		0.0300	0.100	0.250	U
7440-50-8	<i>Copper</i>		0.0250	0.100	0.250	U
7439-89-6	<i>Iron</i>		0.500	1.00	1.25	U
7439-92-1	<i>Lead</i>		0.00400	0.0100	0.250	U
7439-95-4	<i>Magnesium</i>	20.6	0.400	1.00	1.25	DME
7439-96-5	<i>Manganese</i>		0.0400	0.100	0.250	U
7440-02-0	<i>Nickel</i>		0.0400	0.100	0.250	U
7440-09-7	<i>Potassium</i>	47.2	0.500	1.00	1.25	DME
7782-49-2	<i>Selenium</i>		0.0350	0.100	0.250	U
7440-22-4	<i>Silver</i>		0.00400	0.0100	0.0250	U
7440-23-5	<i>Sodium</i>	29.3	0.500	1.00	1.25	DME
7440-28-0	<i>Thallium</i>		0.00350	0.100	0.250	U
7440-62-2	<i>Vanadium</i>		0.0400	0.100	0.250	U
7440-66-6	<i>Zinc</i>		0.0500	0.200	0.250	U

Italicized = secondary result

Jm H-19



# 1 - FORM I

## ANALYSIS DATA SHEET

18111402

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Water	Laboratory ID:	18L0444-02RE2
		File ID:	121818.xml-025
Sampled:	12/11/18 10:00	Prepared:	12/14/18 13:34
		Analyzed:	12/18/18 10:38
Solids:		Preparation:	3015_METALS_PREP_M
		Dilution:	5
Initial/Final:	40 ml / 50 ml		
Batch:	B8L0487	Sequence:	S8L0249
		Calibration:	EL80044
		Instrument:	ICP-MS iCAP Q

CAS NO.	COMPOUND	CONC. (mg/L)	MDL	LOD	RL	Q
7440-50-8	Copper	0.00777	0.00250	0.0100	0.0250	J <i>Q</i>
7439-92-1	Lead	0.000461	0.000400	0.00100	0.0250	J <i>Q</i>
7440-22-4	Silver		0.000400	0.00100	0.00250	U
7440-66-6	Zinc		0.00500	0.0200	0.0250	U

Italicized = secondary result

*MWH 019*

**1 - FORM I**  
**ANALYSIS DATA SHEET**

18111402

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set				
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01				
Matrix:	Water	Laboratory ID:	18L0444-02RE1	File ID:	121818L-023		
Sampled:	12/11/18 10:00	Prepared:	12/18/18 07:30	Analyzed:	12/18/18 11:06		
Solids:		Preparation:	245-7470_HG_PREP	Dilution:	1		
Initial/Final:	50 ml / 50 ml						
Batch:	B8L0550	Sequence:	S8L0247	Calibration:	EL80043	Instrument:	Hg Hydra

CAS NO.	COMPOUND	CONC. (mg/L)	MDL	LOD	RL	Q
7439-97-6	Mercury		0.00010	0.00025	0.00050	U

MW 10-19

# 1 - FORM I

## ANALYSIS DATA SHEET

18111403

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Water	Laboratory ID:	18L0446-02
		File ID:	121718A.xml-027
Sampled:	12/11/18 10:21	Prepared:	12/14/18 13:34
		Analyzed:	12/17/18 15:20
Solids:		Preparation:	3015_METALS_PREP_M: Dilution: 5
Initial/Final:	40 ml / 50 ml		
Batch:	B8L0487	Sequence:	S8L0240
		Calibration:	EL80041
		Instrument:	ICP-MS iCAP Q

CAS NO.	COMPOUND	CONC. (mg/L)	MDL	LOD	RL	Q
7429-90-5	Aluminum	3.73	0.0250	0.100	0.125	
7440-36-0	Antimony		0.00400	0.0100	0.0250	U
7440-38-2	Arsenic		0.00400	0.0100	0.0250	U
7440-39-3	Barium	0.174	0.00350	0.0100	0.0250	
7440-41-7	Beryllium		0.000400	0.00100	0.00250	U
7440-43-9	Cadmium	0.000261	0.000250	0.00100	0.00250	JQ
7440-70-2	<del>Calcium</del>	<del>86.6</del>	<del>0.0500</del>	<del>0.100</del>	<del>0.125</del>	<del>B, Em JH</del>
7440-47-3	Chromium	0.00652	0.00250	0.0100	0.0250	JQ
7440-48-4	Cobalt		0.00300	0.0100	0.0250	U
7440-50-8	<del>Copper</del>	<del>0.0187</del>	<del>0.00250</del>	<del>0.0100</del>	<del>0.0250</del>	<del>JQ W</del>
7439-89-6	Iron	2.60	0.0500	0.100	0.125	
7439-92-1	<del>Lead</del>	<del>0.0174</del>	<del>0.000400</del>	<del>0.00100</del>	<del>0.0250</del>	<del>JQ W</del>
7439-95-4	Magnesium	20.0	0.0400	0.100	0.125	
7439-96-5	Manganese	2.56	0.00400	0.0100	0.0250	
7440-02-0	* Nickel	0.00862	0.00400	0.0100	0.0250	JQ
7440-09-7	<del>Potassium</del>	<del>51.0</del>	<del>0.0500</del>	<del>0.100</del>	<del>0.125</del>	<del>Em JH</del>
7782-49-2	Selenium		0.00350	0.0100	0.0250	U
7440-22-4	<del>Silver</del>		<del>0.000400</del>	<del>0.00100</del>	<del>0.00250</del>	<del>U W</del>
7440-23-5	Sodium	24.5	0.0500	0.100	0.125	
7440-28-0	Thallium		0.000350	0.0100	0.0250	U
7440-62-2	Vanadium	0.00568	0.00400	0.0100	0.0250	JQ
7440-66-6	<del>Zinc</del>	<del>0.0733</del>	<del>0.00500</del>	<del>0.0200</del>	<del>0.0250</del>	<del>B, Em JH</del>

Italicized = secondary result

*Mr Ho-19*

# 1 - FORM I ANALYSIS DATA SHEET

18111403

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Water	Laboratory ID:	18L0446-02RE1
		File ID:	121718A.xml-052
Sampled:	12/11/18 10:21	Prepared:	12/14/18 13:34
		Analyzed:	12/17/18 16:07
Solids:		Preparation:	3015_METALS_PREP_M: Dilution: 50
Initial/Final:	40 ml / 50 ml		
Batch:	B8L0487	Sequence:	S8L0240
		Calibration:	EL80041
		Instrument:	ICP-MS iCAP Q

CAS NO.	COMPOUND	CONC. (mg/L)	MDL	LOD	RL	Q
7429-90-5	Aluminum	3.89	0.250	1.00	1.25	<del>DM</del>
7440-36-0	Antimony		0.0400	0.100	0.250	U
7440-38-2	Arsenic		0.0400	0.100	0.250	U
7440-39-3	Barium	0.178	0.0350	0.100	0.250	J, <del>DM</del> Q
7440-41-7	Beryllium	0.0166	0.00400	0.0100	0.0250	J, <del>DM</del> Q
7440-43-9	Cadmium		0.00250	0.0100	0.0250	U <del>DM</del>
7440-70-2	Calcium	87.6	0.500	1.00	1.25	<del>DM</del>
7440-47-3	Chromium		0.0250	0.100	0.250	U
7440-48-4	Cobalt		0.0300	0.100	0.250	U
7440-50-8	Copper		0.0250	0.100	0.250	U
7439-89-6	Iron	2.87	0.500	1.00	1.25	<del>DM</del>
7439-92-1	Lead	0.0186	0.00400	0.0100	0.250	J, <del>DM</del> Q
7439-95-4	Magnesium	20.8	0.400	1.00	1.25	<del>DM</del>
7439-96-5	Manganese	2.69	0.0400	0.100	0.250	<del>DM</del>
7440-02-0	Nickel		0.0400	0.100	0.250	U <del>DM</del>
7440-09-7	Potassium	53.5	0.500	1.00	1.25	<del>DM</del>
7782-49-2	Selenium		0.0350	0.100	0.250	U
7440-22-4	Silver		0.00400	0.0100	0.0250	U
7440-23-5	Sodium	26.0	0.500	1.00	1.25	<del>DM</del>
7440-28-0	Thallium		0.00350	0.100	0.250	U
7440-62-2	Vanadium		0.0400	0.100	0.250	U
7440-66-6	Zinc	0.0863	0.0500	0.200	0.250	J, <del>DM</del> Q

Italicized = secondary result

*DMH*

# 1 - FORM I

## ANALYSIS DATA SHEET

18111403

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Water	Laboratory ID:	18L0446-02RE2
		File ID:	121818.xml-027
Sampled:	12/11/18 10:21	Prepared:	12/14/18 13:34
		Analyzed:	12/18/18 10:41
Solids:		Preparation:	3015_METALS_PREP_M
		Dilution:	5
Initial/Final:	40 ml / 50 ml		
Batch:	B8L0487	Sequence:	S8L0249
		Calibration:	EL80044
		Instrument:	ICP-MS iCAP Q

CAS NO.	COMPOUND	CONC. (mg/L)	MDL	LOD	RL	Q
7440-50-8	Copper	0.0180	0.00250	0.0100	0.0250	JQ
7439-92-1	Lead	0.0188	0.000400	0.00100	0.0250	JQ
7440-22-4	Silver		0.000400	0.00100	0.00250	U
7440-66-6	Zinc	0.0659	0.00500	0.0200	0.0250	<del>AB</del> M

Italicized = secondary result

*MW Helg*

**1 - FORM I**  
**ANALYSIS DATA SHEET**

18111403

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set				
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01				
Matrix:	Water	Laboratory ID:	18L0446-02RE1	File ID:	121818L-010		
Sampled:	12/11/18 10:21	Prepared:	12/18/18 07:30	Analyzed:	12/18/18 10:28		
Solids:		Preparation:	245-7470_HG_PREP	Dilution:	1		
Initial/Final:	50 ml / 50 ml						
Batch:	B8L0550	Sequence:	S8L0247	Calibration:	EL80043	Instrument:	Hg Hydra

CAS NO.	COMPOUND	CONC. (mg/L)	MDL	LOD	RL	Q
7439-97-6	Mercury		0.00010	0.00025	0.00050	U

*MW H019*

# 1 - FORM I ANALYSIS DATA SHEET

18111404

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Water	Laboratory ID:	18L0446-01
		File ID:	121718A.xml-026
Sampled:	12/11/18 11:27	Prepared:	12/14/18 13:34
		Analyzed:	12/17/18 15:18
Solids:		Preparation:	3015_METALS_PREP_M
		Dilution:	5
Initial/Final:	40 ml / 50 ml		
Batch:	B8L0487	Sequence:	S8L0240
		Calibration:	EL80041
		Instrument:	ICP-MS iCAP Q

CAS NO.	COMPOUND	CONC. (mg/L)	MDL	LOD	RL	Q
7429-90-5	Aluminum	0.0360	0.0250	0.100	0.125	J
7440-36-0	Antimony		0.00400	0.0100	0.0250	U
7440-38-2	Arsenic		0.00400	0.0100	0.0250	U
7440-39-3	Barium	0.102	0.00350	0.0100	0.0250	
7440-41-7	Beryllium		0.000400	0.00100	0.00250	U
7440-43-9	Cadmium		0.000250	0.00100	0.00250	U
7440-70-2	<del>Calcium</del>	<del>79.3</del>	<del>0.0500</del>	<del>0.100</del>	<del>0.125</del>	<del>B, E </del>
7440-47-3	Chromium	0.00283	0.00250	0.0100	0.0250	J
7440-48-4	Cobalt		0.00300	0.0100	0.0250	U
7440-50-8	<del>Copper</del>	<del>0.00527</del>	<del>0.00250</del>	<del>0.0100</del>	<del>0.0250</del>	<del>J </del>
7439-89-6	Iron	0.382	0.0500	0.100	0.125	
7439-92-1	<del>Lead</del>		<del>0.000400</del>	<del>0.00100</del>	<del>0.0250</del>	<del>U </del>
7439-95-4	Magnesium	19.3	0.0400	0.100	0.125	
7439-96-5	Manganese	0.265	0.00400	0.0100	0.0250	
7440-02-0	Nickel		0.00400	0.0100	0.0250	U
7440-09-7	<del>Potassium</del>	<del>54.2</del>	<del>0.0500</del>	<del>0.100</del>	<del>0.125</del>	<del></del>
7782-49-2	Selenium		0.00350	0.0100	0.0250	U
7440-22-4	<del>Silver</del>		<del>0.000400</del>	<del>0.00100</del>	<del>0.00250</del>	<del>U </del>
7440-23-5	Sodium	24.2	0.0500	0.100	0.125	
7440-28-0	Thallium		0.000350	0.0100	0.0250	U
7440-62-2	Vanadium		0.00400	0.0100	0.0250	U
7440-66-6	<del>Zinc</del>	<del>0.0107</del>	<del>0.00500</del>	<del>0.0200</del>	<del>0.0250</del>	<del>J, </del>

Italicized = secondary result

# 1 - FORM I ANALYSIS DATA SHEET

18111404

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Water	Laboratory ID:	18L0446-01RE1
		File ID:	121718A.xml-051
Sampled:	12/11/18 11:27	Prepared:	12/14/18 13:34
		Analyzed:	12/17/18 16:05
Solids:		Preparation:	3015_METALS_PREP_M: Dilution: 50
Initial/Final:	40 ml / 50 ml		
Batch:	B8L0487	Sequence:	S8L0240
		Calibration:	EL80041
		Instrument:	ICP-MS iCAP Q

CAS NO.	COMPOUND	CONC. (mg/L)	MDL	LOD	RL	Q
7429-90-5	<del>Aluminum</del>		0.250	1.00	1.25	U
7440-36-0	Antimony		0.0400	0.100	0.250	U
7440-38-2	Arsenic		0.0400	0.100	0.250	U
7440-39-3	Barium	0.102	0.0350	0.100	0.250	J, p Q
7440-41-7	Beryllium	0.0153	0.00400	0.0100	0.0250	J, p Q
7440-43-9	Cadmium		0.00250	0.0100	0.0250	U
7440-70-2	Calcium	83.2	0.500	1.00	1.25	D, B M
7440-47-3	Chromium		0.0250	0.100	0.250	U
7440-48-4	Cobalt		0.0300	0.100	0.250	U
7440-50-8	Copper		0.0250	0.100	0.250	U
7439-89-6	Iron		0.500	1.00	1.25	U
7439-92-1	Lead		0.00400	0.0100	0.250	U
7439-95-4	Magnesium	20.2	0.400	1.00	1.25	D
7439-96-5	Manganese	0.270	0.0400	0.100	0.250	D M
7440-02-0	Nickel		0.0400	0.100	0.250	U
7440-09-7	Potassium	56.3	0.500	1.00	1.25	D M
7782-49-2	Selenium		0.0350	0.100	0.250	U
7440-22-4	Silver		0.00400	0.0100	0.0250	U
7440-23-5	Sodium	25.3	0.500	1.00	1.25	D M
7440-28-0	Thallium		0.00350	0.100	0.250	U
7440-62-2	Vanadium		0.0400	0.100	0.250	U
7440-66-6	Zinc		0.0500	0.200	0.250	U M

Italicized = secondary result

Jm/40-19



# 1 - FORM I

## ANALYSIS DATA SHEET

18111404

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Water	Laboratory ID:	18L0446-01RE2
		File ID:	121818.xml-026
Sampled:	12/11/18 11:27	Prepared:	12/14/18 13:34
		Analyzed:	12/18/18 10:39
Solids:		Preparation:	3015_METALS_PREP_M: Dilution: 5
Initial/Final:	40 ml / 50 ml		
Batch:	B8L0487	Sequence:	S8L0249
		Calibration:	EL80044
		Instrument:	ICP-MS iCAP Q

CAS NO.	COMPOUND	CONC. (mg/L)	MDL	LOD	RL	Q
7440-50-8	Copper	0.00518	0.00250	0.0100	0.0250	JQ
7439-92-1	Lead		0.000400	0.00100	0.0250	U
7440-22-4	Silver		0.000400	0.00100	0.00250	U
7440-66-6	Zinc		0.00500	0.0200	0.0250	U

Italicized = secondary result

*MH049*

**1 - FORM I**  
**ANALYSIS DATA SHEET**

18111404

Laboratory:	Environmental Monitoring and Tech			SDG:	10RB-2nd Set	
Client:	Ecology and Environment, Inc.			Project:	1004530.0470.001.01	
Matrix:	Water	Laboratory ID:	18L0446-01RE1	File ID:	121818L-017	
Sampled:	12/11/18 11:27	Prepared:	12/18/18 07:30	Analyzed:	12/18/18 10:53	
Solids:		Preparation:	245-7470_HG_PREP	Dilution:	1	
Initial/Final:	50 ml / 50 ml					
Batch:	B8L0550	Sequence:	S8L0247	Calibration:	EL80043	Instrument: Hg Hydra

CAS NO.	COMPOUND	CONC. (mg/L)	MDL	LOD	RL	Q
7439-97-6	Mercury		0.00010	0.00025	0.00050	U

*mw Hotg*

# 1 - FORM I ANALYSIS DATA SHEET

18111405

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Water	Laboratory ID:	18L0447-01
		File ID:	121718A.xml-028
Sampled:	12/11/18 10:51	Prepared:	12/14/18 13:34
		Analyzed:	12/17/18 15:22
Solids:		Preparation:	3015_METALS_PREP_M
		Dilution:	5
Initial/Final:	40 ml / 50 ml		
Batch:	B8L0487	Sequence:	S8L0240
		Calibration:	EL80041
		Instrument:	ICP-MS iCAP Q

CAS NO.	COMPOUND	CONC. (mg/L)	MDL	LOD	RL	Q
7429-90-5	Aluminum	0.0363	0.0250	0.100	0.125	JQ
7440-36-0	Antimony		0.00400	0.0100	0.0250	U
7440-38-2	Arsenic		0.00400	0.0100	0.0250	U
7440-39-3	Barium	0.102	0.00350	0.0100	0.0250	
7440-41-7	Beryllium		0.000400	0.00100	0.00250	U
7440-43-9	Cadmium		0.000250	0.00100	0.00250	U
7440-70-2	<del>Calcium</del>	<del>86.1</del>	<del>0.0500</del>	<del>0.100</del>	<del>0.125</del>	<del>B, F, J, M</del>
7440-47-3	Chromium	0.00281	0.00250	0.0100	0.0250	JQ
7440-48-4	Cobalt		0.00300	0.0100	0.0250	U
7440-50-8	<del>Copper</del>	<del>0.00750</del>	<del>0.00250</del>	<del>0.0100</del>	<del>0.0250</del>	<del>JQ, M</del>
7439-89-6	Iron	0.268	0.0500	0.100	0.125	
7439-92-1	<del>Lead</del>		<del>0.000400</del>	<del>0.00100</del>	<del>0.0250</del>	<del>U, M</del>
7439-95-4	Magnesium	20.7	0.0400	0.100	0.125	
7439-96-5	Manganese	0.250	0.00400	0.0100	0.0250	
7440-02-0	Nickel		0.00400	0.0100	0.0250	U
7440-09-7	<del>Potassium</del>	<del>58.6</del>	<del>0.0500</del>	<del>0.100</del>	<del>0.125</del>	<del>F, M, J, M</del>
7782-49-2	Selenium		0.00350	0.0100	0.0250	U
7440-22-4	<del>Silver</del>		<del>0.000400</del>	<del>0.00100</del>	<del>0.00250</del>	<del>U, M</del>
7440-23-5	Sodium	29.0	0.0500	0.100	0.125	
7440-28-0	Thallium		0.000350	0.0100	0.0250	U
7440-62-2	Vanadium		0.00400	0.0100	0.0250	U
7440-66-6	<del>Zinc</del>	<del>0.0128</del>	<del>0.00500</del>	<del>0.0200</del>	<del>0.0250</del>	<del>J, F, M, Q, M</del>

Italicized = secondary result

*John Ho A*

# 1 - FORM I

## ANALYSIS DATA SHEET

18111405

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Water	Laboratory ID:	18L0447-01RE1
		File ID:	121718A.xml-053
Sampled:	12/11/18 10:51	Prepared:	12/14/18 13:34
		Analyzed:	12/17/18 16:09
Solids:		Preparation:	3015_METALS_PREP_M: Dilution: 50
Initial/Final:	40 ml / 50 ml		
Batch:	B8L0487	Sequence:	S8L0240
		Calibration:	EL80041
		Instrument:	ICP-MS iCAP Q

CAS NO.	COMPOUND	CONC. (mg/L)	MDL	LOD	RL	Q
7429-90-5	<del>Aluminum</del>		0.250	1.00	1.25	U
7440-36-0	<del>Antimony</del>		0.0400	0.100	0.250	U
7440-38-2	<del>Arsenic</del>		0.0400	0.100	0.250	U
7440-39-3	<del>Barium</del>	0.111	0.0350	0.100	0.250	J. P. m. Q
7440-41-7	<del>Beryllium</del>	0.0159	0.00400	0.0100	0.0250	J. P. m. Q
7440-43-9	<del>Cadmium</del>		0.00250	0.0100	0.0250	U
7440-70-2	<del>Calcium</del>	88.3	0.500	1.00	1.25	D. B. m
7440-47-3	<del>Chromium</del>		0.0250	0.100	0.250	U
7440-48-4	<del>Cobalt</del>		0.0300	0.100	0.250	U
7440-50-8	<del>Copper</del>		0.0250	0.100	0.250	U
7439-89-6	<del>Iron</del>		0.500	1.00	1.25	U
7439-92-1	<del>Lead</del>		0.00400	0.0100	0.250	U
7439-95-4	<del>Magnesium</del>	21.6	0.400	1.00	1.25	D. m
7439-96-5	<del>Manganese</del>	0.257	0.0400	0.100	0.250	D. m
7440-02-0	<del>Nickel</del>		0.0400	0.100	0.250	U
7440-09-7	<del>Potassium</del>	61.4	0.500	1.00	1.25	P. m
7782-49-2	<del>Selenium</del>		0.0350	0.100	0.250	U
7440-22-4	<del>Silver</del>		0.00400	0.0100	0.0250	U
7440-23-5	<del>Sodium</del>	27.7	0.500	1.00	1.25	D. m
7440-28-0	<del>Thallium</del>		0.00350	0.100	0.250	U
7440-62-2	<del>Vanadium</del>		0.0400	0.100	0.250	U
7440-66-6	<del>Zinc</del>		0.0500	0.200	0.250	U

Italicized = secondary result

M. H. 19

# 1 - FORM I ANALYSIS DATA SHEET

18111405

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Water	Laboratory ID:	18L0447-01RE2
		File ID:	121818.xml-028
Sampled:	12/11/18 10:51	Prepared:	12/14/18 13:34
		Analyzed:	12/18/18 10:43
Solids:		Preparation:	3015_METALS_PREP_M: Dilution: 5
Initial/Final:	40 ml / 50 ml		
Batch:	B8L0487	Sequence:	S8L0249
		Calibration:	EL80044
		Instrument:	ICP-MS iCAP Q

CAS NO.	COMPOUND	CONC. (mg/L)	MDL	LOD	RL	Q
7440-50-8	Copper	0.00739	0.00250	0.0100	0.0250	JQ
7439-92-1	Lead		0.000400	0.00100	0.0250	U
7440-22-4	Silver		0.000400	0.00100	0.00250	U
7440-66-6	Zinc		0.00500	0.0200	0.0250	U

Italicized = secondary result

*mw 12/19*

**1 - FORM I**  
**ANALYSIS DATA SHEET**

18111405

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set				
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01				
Matrix:	Water	Laboratory ID:	18L0447-01RE1	File ID:	121818L-011		
Sampled:	12/11/18 10:51	Prepared:	12/18/18 07:30	Analyzed:	12/18/18 10:30		
Solids:		Preparation:	245-7470_HG_PREP	Dilution:	1		
Initial/Final:	50 ml / 50 ml						
Batch:	B8L0550	Sequence:	S8L0247	Calibration:	EL80043	Instrument:	Hg Hydra

CAS NO.	COMPOUND	CONC. (mg/L)	MDL	LOD	RL	Q
7439-97-6	Mercury		0.00010	0.00025	0.00050	U

*Mw Hotg*

# 1 - FORM I ANALYSIS DATA SHEET

18111406

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Water	Laboratory ID:	18L0447-02
		File ID:	121718A.xml-029
Sampled:	12/11/18 11:00	Prepared:	12/14/18 13:34
		Analyzed:	12/17/18 15:24
Solids:		Preparation:	3015_METALS_PREP_M: Dilution: 5
Initial/Final:	40 ml / 50 ml		
Batch:	B8L0487	Sequence:	S8L0240
		Calibration:	EL80041
		Instrument:	ICP-MS iCAP Q

CAS NO.	COMPOUND	CONC. (mg/L)	MDL	LOD	RL	Q
7429-90-5	Aluminum	0.0372	0.0250	0.100	0.125	JG
7440-36-0	Antimony		0.00400	0.0100	0.0250	U
7440-38-2	Arsenic		0.00400	0.0100	0.0250	U
7440-39-3	Barium	0.101	0.00350	0.0100	0.0250	
7440-41-7	Beryllium		0.000400	0.00100	0.00250	U
7440-43-9	Cadmium		0.000250	0.00100	0.00250	U
7440-70-2	<del>Calcium</del>	<del>84.7</del>	<del>0.0500</del>	<del>0.100</del>	<del>0.125</del>	<del>B, E, J, K</del>
7440-47-3	Chromium	0.00294	0.00250	0.0100	0.0250	JG
7440-48-4	Cobalt		0.00300	0.0100	0.0250	U
7440-50-8	<del>Copper</del>	<del>0.00837</del>	<del>0.00250</del>	<del>0.0100</del>	<del>0.0250</del>	<del>JG m</del>
7439-89-6	Iron	0.286	0.0500	0.100	0.125	
7439-92-1	<del>Lead</del>	<del>0.00105</del>	<del>0.000400</del>	<del>0.00100</del>	<del>0.0250</del>	<del>JG m</del>
7439-95-4	Magnesium	20.3	0.0400	0.100	0.125	
7439-96-5	Manganese	0.251	0.00400	0.0100	0.0250	
7440-02-0	Nickel		0.00400	0.0100	0.0250	U
7440-09-7	<del>Potassium</del>	<del>58.2</del>	<del>0.0500</del>	<del>0.100</del>	<del>0.125</del>	<del>E, J, K</del>
7782-49-2	Selenium		0.00350	0.0100	0.0250	U
7440-22-4	<del>Silver</del>		<del>0.000400</del>	<del>0.00100</del>	<del>0.00250</del>	<del>U m</del>
7440-23-5	Sodium	25.6	0.0500	0.100	0.125	
7440-28-0	Thallium		0.000350	0.0100	0.0250	U
7440-62-2	Vanadium		0.00400	0.0100	0.0250	U
7440-66-6	<del>Zinc</del>	<del>0.0188</del>	<del>0.00500</del>	<del>0.0200</del>	<del>0.0250</del>	<del>J, E, K</del>

Italicized = secondary result

*MW H219*

# 1 - FORM I ANALYSIS DATA SHEET

18111406

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Water	Laboratory ID:	18L0447-02RE1
		File ID:	121718A.xml-054
Sampled:	12/11/18 11:00	Prepared:	12/14/18 13:34
		Analyzed:	12/17/18 16:11
Solids:		Preparation:	3015_METALS_PREP_M
		Dilution:	50
Initial/Final:	40 ml / 50 ml		
Batch:	B8L0487	Sequence:	S8L0240
		Calibration:	EL80041
		Instrument:	ICP-MS iCAP Q

CAS NO.	COMPOUND	CONC. (mg/L)	MDL	LOD	RL	Q
7429-90-5	<i>Aluminum</i>		0.250	1.00	1.25	U
7440-36-0	<i>Antimony</i>		0.0400	0.100	0.250	U
7440-38-2	<i>Arsenic</i>		0.0400	0.100	0.250	U
7440-39-3	<i>Barium</i>	0.104	0.0350	0.100	0.250	J, D <i>mu Q</i>
7440-41-7	<i>Beryllium</i>	0.0160	0.00400	0.0100	0.0250	J, D <i>mu Q</i>
7440-43-9	<i>Cadmium</i>		0.00250	0.0100	0.0250	U <i>mu</i>
7440-70-2	<i>Calcium</i>	88.2	0.500	1.00	1.25	D, B <i>mu</i>
7440-47-3	<i>Chromium</i>		0.0250	0.100	0.250	U
7440-48-4	<i>Cobalt</i>		0.0300	0.100	0.250	U
7440-50-8	<i>Copper</i>		0.0250	0.100	0.250	U
7439-89-6	<i>Iron</i>		0.500	1.00	1.25	U
7439-92-1	<i>Lead</i>		0.00400	0.0100	0.250	U
7439-95-4	<i>Magnesium</i>	22.3	0.400	1.00	1.25	D <i>mu</i>
7439-96-5	<i>Manganese</i>	0.264	0.0400	0.100	0.250	D <i>mu</i>
7440-02-0	<i>Nickel</i>		0.0400	0.100	0.250	U <i>mu</i>
7440-09-7	<i>Potassium</i>	60.8	0.500	1.00	1.25	D <i>mu</i>
7782-49-2	<i>Selenium</i>		0.0350	0.100	0.250	U
7440-22-4	<i>Silver</i>		0.00400	0.0100	0.0250	U
7440-23-5	<i>Sodium</i>	27.8	0.500	1.00	1.25	D <i>mu</i>
7440-28-0	<i>Thallium</i>		0.00350	0.100	0.250	U
7440-62-2	<i>Vanadium</i>		0.0400	0.100	0.250	U
7440-66-6	<i>Zinc</i>		0.0500	0.200	0.250	U <i>mu</i>

Italicized = secondary result

*MW H019*



# 1 - FORM I

## ANALYSIS DATA SHEET

18111406

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Water	Laboratory ID:	18L0447-02RE2
		File ID:	121818.xml-029
Sampled:	12/11/18 11:00	Prepared:	12/14/18 13:34
		Analyzed:	12/18/18 10:45
Solids:		Preparation:	3015_METALS_PREP_M: Dilution: 5
Initial/Final:	40 ml / 50 ml		
Batch:	B8L0487	Sequence:	S8L0249
		Calibration:	EL80044
		Instrument:	ICP-MS iCAP Q

CAS NO.	COMPOUND	CONC. (mg/L)	MDL	LOD	RL	Q
7440-50-8	Copper	0.00806	0.00250	0.0100	0.0250	JQ
7439-92-1	Lead	0.00116	0.000400	0.00100	0.0250	JQ
7440-22-4	Silver		0.000400	0.00100	0.00250	U
7440-66-6	Zinc	<del>0.00946</del>	0.00500	0.0200	0.0250	UJQ

Italicized = secondary result

*mu H019*

**1 - FORM I**  
**ANALYSIS DATA SHEET**

18111406

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set				
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01				
Matrix:	Water	Laboratory ID:	18L0447-02RE1	File ID:	121818L-012		
Sampled:	12/11/18 11:00	Prepared:	12/18/18 07:30	Analyzed:	12/18/18 10:35		
Solids:		Preparation:	245-7470_HG_PREP	Dilution:	1		
Initial/Final:	50 ml / 50 ml						
Batch:	B8L0550	Sequence:	S8L0247	Calibration:	EL80043	Instrument:	Hg Hydra

CAS NO.	COMPOUND	CONC. (mg/L)	MDL	LOD	RL	Q
7439-97-6	Mercury		0.00010	0.00025	0.00050	U

*MW H0-19*

# 1 - FORM I

## ANALYSIS DATA SHEET

18111408

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Water	Laboratory ID:	18L0489-01
		File ID:	121718A.xml-030
Sampled:	12/11/18 14:37	Prepared:	12/14/18 13:34
		Analyzed:	12/17/18 15:25
Solids:		Preparation:	3015_METALS_PREP_M
		Dilution:	5
Initial/Final:	40 ml / 50 ml		
Batch:	B8L0487	Sequence:	S8L0240
		Calibration:	EL80041
		Instrument:	ICP-MS iCAP Q

CAS NO.	COMPOUND	CONC. (mg/L)	MDL	LOD	RL	Q
7429-90-5	Aluminum	0.775	0.0250	0.100	0.125	
7440-36-0	Antimony		0.00400	0.0100	0.0250	U
7440-38-2	Arsenic	0.00504	0.00400	0.0100	0.0250	JQ
7440-39-3	Barium	0.0173	0.00350	0.0100	0.0250	JQ
7440-41-7	Beryllium	0.0446	0.000400	0.00100	0.00250	
7440-43-9	Cadmium	0.000627	0.000250	0.00100	0.00250	JQ
7440-70-2	Calcium	5.37	0.0500	0.100	0.125	BW
7440-47-3	Chromium	0.00473	0.00250	0.0100	0.0250	JQ
7440-48-4	Cobalt		0.00300	0.0100	0.0250	U
7440-50-8	Copper	0.00914	0.00250	0.0100	0.0250	JQ MW
7439-89-6	Iron	0.843	0.0500	0.100	0.125	
7439-92-1	Lead	0.00412	0.000400	0.00100	0.0250	JQ MW
7439-95-4	Magnesium	1.66	0.0400	0.100	0.125	
7439-96-5	Manganese	0.0428	0.00400	0.0100	0.0250	
7440-02-0	Nickel		0.00400	0.0100	0.0250	U
7440-09-7	Potassium	1.67	0.0500	0.100	0.125	
7782-49-2	Selenium	0.0535	0.00350	0.0100	0.0250	
7440-22-4	Silver		0.000400	0.00100	0.00250	U MW
7440-23-5	Sodium	4.32	0.0500	0.100	0.125	
7440-28-0	Thallium	0.000860	0.000350	0.0100	0.0250	JQ
7440-62-2	Vanadium		0.00400	0.0100	0.0250	U
7440-66-6	Zinc	0.0200	0.00500	0.0200	0.0250	J, B, Q

Italicized = secondary result

*MW Hote*

# 1 - FORM I

## ANALYSIS DATA SHEET

18111408

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Water	Laboratory ID:	18L0489-01RE1
		File ID:	121818.xml-033
Sampled:	12/11/18 14:37	Prepared:	12/14/18 13:34
		Analyzed:	12/18/18 10:52
Solids:		Preparation:	3015_METALS_PREP_M
		Dilution:	5
Initial/Final:	40 ml / 50 ml		
Batch:	B8L0487	Sequence:	S8L0249
		Calibration:	EL80044
		Instrument:	ICP-MS iCAP Q

CAS NO.	COMPOUND	CONC. (mg/L)	MDL	LOD	RL	Q
7440-50-8	Copper	0.00863	0.00250	0.0100	0.0250	JQ
7439-92-1	Lead	0.00413	0.000400	0.00100	0.0250	JQ
7440-22-4	Silver		0.000400	0.00100	0.00250	U
7440-66-6	Zinc	<del>0.00863</del>	0.00500	0.0200	0.0250	U <del>JQ</del>

Italicized = secondary result

*Mw H-19*

**1 - FORM I**  
**ANALYSIS DATA SHEET**

18111408

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set				
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01				
Matrix:	Water	Laboratory ID:	18L0489-01	File ID:	121818L-013		
Sampled:	12/11/18 14:37	Prepared:	12/18/18 07:30	Analyzed:	12/18/18 10:44		
Solids:		Preparation:	245-7470_HG_PREP	Dilution:	1		
Initial/Final:	50 ml / 50 ml						
Batch:	B8L0550	Sequence:	S8L0247	Calibration:	EL80043	Instrument:	Hg Hydra

CAS NO.	COMPOUND	CONC. (mg/L)	MDL	LOD	RL	Q
7439-97-6	Mercury		0.00010	0.00025	0.00050	U



# 1 - FORM I ANALYSIS DATA SHEET

18111409

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Water	Laboratory ID:	18L0495-01
		File ID:	121718A.xml-042
Sampled:	12/11/18 00:00	Prepared:	12/14/18 13:34
		Analyzed:	12/17/18 15:49
Solids:		Preparation:	3015_METALS_PREP_M
		Dilution:	5
Initial/Final:	40 ml / 50 ml		
Batch:	B8L0487	Sequence:	S8L0240
		Calibration:	EL80041
		Instrument:	ICP-MS iCAP Q

CAS NO.	COMPOUND	CONC. (mg/L)	MDL	LOD	RL	Q
7429-90-5	Aluminum	0.426	0.0250	0.100	0.125	
7440-36-0	Antimony		0.00400	0.0100	0.0250	U
7440-38-2	Arsenic		0.00400	0.0100	0.0250	U
7440-39-3	Barium	0.0658	0.00350	0.0100	0.0250	
7440-41-7	Beryllium		0.000400	0.00100	0.00250	U
7440-43-9	Cadmium		0.000250	0.00100	0.00250	U
7440-70-2	<del>Calcium</del>	<del>105</del>	<del>0.0500</del>	<del>0.100</del>	<del>0.125</del>	<del>B, E</del>
7440-47-3	Chromium	0.00344	0.00250	0.0100	0.0250	JQ
7440-48-4	Cobalt		0.00300	0.0100	0.0250	U
7440-50-8	<del>Copper</del>	<del>0.0113</del>	<del>0.00250</del>	<del>0.0100</del>	<del>0.0250</del>	<del>JQ</del>
7439-89-6	Iron	0.478	0.0500	0.100	0.125	
7439-92-1	<del>Lead</del>	<del>0.00319</del>	<del>0.000400</del>	<del>0.00100</del>	<del>0.0250</del>	<del>JQ</del>
7439-95-4	Magnesium	20.7	0.0400	0.100	0.125	
7439-96-5	Manganese	0.330	0.00400	0.0100	0.0250	
7440-02-0	Nickel	0.00501	0.00400	0.0100	0.0250	JQ
7440-09-7	<del>Potassium</del>	<del>31.5</del>	<del>0.0500</del>	<del>0.100</del>	<del>0.125</del>	<del>Env</del>
7782-49-2	Selenium		0.00350	0.0100	0.0250	U
7440-22-4	<del>Silver</del>		<del>0.000400</del>	<del>0.00100</del>	<del>0.00250</del>	<del>U</del>
7440-23-5	<del>Sodium</del>	<del>36.3</del>	<del>0.0500</del>	<del>0.100</del>	<del>0.125</del>	<del>Env</del>
7440-28-0	Thallium		0.000350	0.0100	0.0250	U
7440-62-2	Vanadium		0.00400	0.0100	0.0250	U
7440-66-6	<del>Zinc</del>	<del>0.0326</del>	<del>0.00500</del>	<del>0.0200</del>	<del>0.0250</del>	<del>PA</del>

Italicized = secondary result

MW H019

# 1 - FORM I ANALYSIS DATA SHEET

18111409

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Water	Laboratory ID:	18L0495-01RE1
		File ID:	121718A.xml-055
Sampled:	12/11/18 00:00	Prepared:	12/14/18 13:34
		Analyzed:	12/17/18 16:12
Solids:		Preparation:	3015_METALS_PREP_M
		Dilution:	50
Initial/Final:	40 ml / 50 ml		
Batch:	B8L0487	Sequence:	S8L0240
		Calibration:	EL80041
		Instrument:	ICP-MS iCAP Q

CAS NO.	COMPOUND	CONC. (mg/L)	MDL	LOD	RL	Q
7429-90-5	Aluminum	0.466	0.250	1.00	1.25	J, P Q
7440-36-0	Antimony		0.0400	0.100	0.250	U
7440-38-2	Arsenic		0.0400	0.100	0.250	U
7440-39-3	Barium	0.0624	0.0350	0.100	0.250	J, P Q
7440-41-7	Beryllium	0.0142	0.00400	0.0100	0.0250	J, P Q
7440-43-9	Cadmium		0.00250	0.0100	0.0250	U
7440-70-2	Calcium	105	0.500	1.00	1.25	D, B Q
7440-47-3	Chromium		0.0250	0.100	0.250	U
7440-48-4	Cobalt		0.0300	0.100	0.250	U
7440-50-8	Copper		0.0250	0.100	0.250	U
7439-89-6	Iron	0.578	0.500	1.00	1.25	J, P Q
7439-92-1	Lead		0.00400	0.0100	0.250	U
7439-95-4	Magnesium	21.2	0.400	1.00	1.25	P
7439-96-5	Manganese	0.331	0.0400	0.100	0.250	U
7440-02-0	Nickel		0.0400	0.100	0.250	U
7440-09-7	Potassium	32.5	0.500	1.00	1.25	U
7782-49-2	Selenium		0.0350	0.100	0.250	U
7440-22-4	Silver		0.00400	0.0100	0.0250	U
7440-23-5	Sodium	36.9	0.500	1.00	1.25	U
7440-28-0	Thallium		0.00350	0.100	0.250	U
7440-62-2	Vanadium		0.0400	0.100	0.250	U
7440-66-6	Zinc		0.0500	0.200	0.250	U

Italicized = secondary result

18111409

# 1 - FORM I

## ANALYSIS DATA SHEET

18111409

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Water	Laboratory ID:	18L0495-01RE2
		File ID:	121818.xml-041
Sampled:	12/11/18 00:00	Prepared:	12/14/18 13:34
		Analyzed:	12/18/18 11:06
Solids:		Preparation:	3015_METALS_PREP_M: Dilution: 5
Initial/Final:	40 ml / 50 ml		
Batch:	B8L0487	Sequence:	S8L0249
		Calibration:	EL80044
		Instrument:	ICP-MS iCAP Q

CAS NO.	COMPOUND	CONC. (mg/L)	MDL	LOD	RL	Q
7440-50-8	Copper	0.0106	0.00250	0.0100	0.0250	JQ
7439-92-1	Lead	0.00327	0.000400	0.00100	0.0250	JQ
7440-22-4	Silver		0.000400	0.00100	0.00250	U
7440-66-6	Zinc	0.0236 <i>mu</i>	0.00500	0.0200	0.0250	<i>U-L</i>

Italicized = secondary result

*M. H. 9*



**1 - FORM I**  
**ANALYSIS DATA SHEET**

18111409

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Water	Laboratory ID:	18L0495-01
		File ID:	121818L-024
Sampled:	12/11/18 00:00	Prepared:	12/18/18 07:30
		Analyzed:	12/18/18 11:08
Solids:		Preparation:	245-7470_HG_PREP
		Dilution:	1
Initial/Final:	50 ml / 50 ml		
Batch:	B8L0550	Sequence:	S8L0247
		Calibration:	EL80043
		Instrument:	Hg Hydra

CAS NO.	COMPOUND	CONC. (mg/L)	MDL	LOD	RL	Q
7439-97-6	Mercury		0.00010	0.00025	0.00050	U

*Mw Hoda*

# 1 - FORM I ANALYSIS DATA SHEET

18111410

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Water	Laboratory ID:	18L0489-02
		File ID:	121718A.xml-039
Sampled:	12/11/18 13:36	Prepared:	12/14/18 13:34
		Analyzed:	12/17/18 15:43
Solids:		Preparation:	3015_METALS_PREP_M: Dilution: 5
Initial/Final:	40 ml / 50 ml		
Batch:	B8L0487	Sequence:	S8L0240
		Calibration:	EL80041
		Instrument:	ICP-MS iCAP Q

CAS NO.	COMPOUND	CONC. (mg/L)	MDL	LOD	RL	Q
7429-90-5	Aluminum	0.0942	0.0250	0.100	0.125	JQ
7440-36-0	Antimony		0.00400	0.0100	0.0250	U
7440-38-2	Arsenic		0.00400	0.0100	0.0250	U
7440-39-3	Barium	0.0116	0.00350	0.0100	0.0250	JQ
7440-41-7	Beryllium		0.000400	0.00100	0.00250	U
7440-43-9	Cadmium		0.000250	0.00100	0.00250	U
7440-70-2	Calcium	9.22	0.0500	0.100	0.125	Brw
7440-47-3	Chromium	0.00273	0.00250	0.0100	0.0250	JQ
7440-48-4	Cobalt		0.00300	0.0100	0.0250	U
7440-50-8	<del>Copper</del>	<del>0.00255</del>	<del>0.00250</del>	<del>0.0100</del>	<del>0.0250</del>	<del>JQ</del>
7439-89-6	Iron	0.370	0.0500	0.100	0.125	
7439-92-1	<del>Lead</del>	<del>0.000576</del>	<del>0.000400</del>	<del>0.00100</del>	<del>0.0250</del>	<del>JQ</del>
7439-95-4	Magnesium	3.14	0.0400	0.100	0.125	
7439-96-5	Manganese	0.158	0.00400	0.0100	0.0250	
7440-02-0	Nickel		0.00400	0.0100	0.0250	U
7440-09-7	Potassium	2.63	0.0500	0.100	0.125	
7782-49-2	Selenium		0.00350	0.0100	0.0250	U
7440-22-4	<del>Silver</del>		<del>0.000400</del>	<del>0.00100</del>	<del>0.00250</del>	<del>U</del>
7440-23-5	Sodium	11.5	0.0500	0.100	0.125	
7440-28-0	Thallium		0.000350	0.0100	0.0250	U
7440-62-2	Vanadium		0.00400	0.0100	0.0250	U
7440-66-6	<del>Zinc</del>	<del>0.00941</del>	<del>0.00500</del>	<del>0.0200</del>	<del>0.0250</del>	<del>JQ</del>

Italicized = secondary result

MwH019

# 1 - FORM I

## ANALYSIS DATA SHEET

18111410

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Water	Laboratory ID:	18L0489-02RE1
		File ID:	121818.xml-038
Sampled:	12/11/18 13:36	Prepared:	12/14/18 13:34
		Analyzed:	12/18/18 11:01
Solids:		Preparation:	3015_METALS_PREP_M: Dilution: 5
Initial/Final:	40 ml / 50 ml		
Batch:	B8L0487	Sequence:	S8L0249
		Calibration:	EL80044
		Instrument:	ICP-MS iCAP Q

CAS NO.	COMPOUND	CONC. (mg/L)	MDL	LOD	RL	Q
7440-50-8	Copper	0.00253	0.00250	0.0100	0.0250	JQ
7439-92-1	Lead	0.000576	0.000400	0.00100	0.0250	JQ
7440-22-4	Silver		0.000400	0.00100	0.00250	U
7440-66-6	Zinc		0.00500	0.0200	0.0250	U

Italicized = secondary result

*MW Hb-19*

**1 - FORM I**  
**ANALYSIS DATA SHEET**

18111410

Laboratory:	Environmental Monitoring and Tech			SDG:	10RB-2nd Set	
Client:	Ecology and Environment, Inc.			Project:	1004530.0470.001.01	
Matrix:	Water	Laboratory ID:	18L0489-02	File ID:	121818L-020	
Sampled:	12/11/18 13:36	Prepared:	12/18/18 07:30	Analyzed:	12/18/18 11:00	
Solids:		Preparation:	245-7470_HG_PREP	Dilution:	1	
Initial/Final:	50 ml / 50 ml					
Batch:	B8L0550	Sequence:	S8L0247	Calibration:	EL80043	Instrument: Hg Hydra

CAS NO.	COMPOUND	CONC. (mg/L)	MDL	LOD	RL	Q
7439-97-6	Mercury		0.00010	0.00025	0.00050	U

*MW Ho-19*

# 1 - FORM I ANALYSIS DATA SHEET

18111411

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Water	Laboratory ID:	18L0495-02
		File ID:	121718A.xml-043
Sampled:	12/11/18 00:00	Prepared:	12/14/18 13:34
		Analyzed:	12/17/18 15:51
Solids:		Preparation:	3015_METALS_PREP_M: Dilution: 5
Initial/Final:	40 ml / 50 ml		
Batch:	B8L0487	Sequence:	S8L0240
		Calibration:	EL80041
		Instrument:	ICP-MS iCAP Q

CAS NO.	COMPOUND	CONC. (mg/L)	MDL	LOD	RL	Q
7429-90-5	Aluminum	0.241	0.0250	0.100	0.125	
7440-36-0	Antimony		0.00400	0.0100	0.0250	U
7440-38-2	Arsenic		0.00400	0.0100	0.0250	U
7440-39-3	Barium	0.0378	0.00350	0.0100	0.0250	
7440-41-7	Beryllium	0.00348	0.000400	0.00100	0.00250	
7440-43-9	Cadmium		0.000250	0.00100	0.00250	U
7440-70-2	Calcium	18.6	0.0500	0.100	0.125	<i>B mg</i>
7440-47-3	Chromium	0.00299	0.00250	0.0100	0.0250	<i>JQ</i>
7440-48-4	Cobalt		0.00300	0.0100	0.0250	U
7440-50-8	<del>Copper</del>	<del>0.00835</del>	<del>0.00250</del>	<del>0.0100</del>	<del>0.0250</del>	<del><i>JQ</i></del>
7439-89-6	Iron	0.221	0.0500	0.100	0.125	
7439-92-1	<del>Lead</del>	<del>0.00150</del>	<del>0.000400</del>	<del>0.00100</del>	<del>0.0250</del>	<del><i>JQ</i></del>
7439-95-4	Magnesium	3.77	0.0400	0.100	0.125	
7439-96-5	Manganese	0.0262	0.00400	0.0100	0.0250	
7440-02-0	Nickel		0.00400	0.0100	0.0250	U
7440-09-7	Potassium	7.60	0.0500	0.100	0.125	
7782-49-2	Selenium	0.00388	0.00350	0.0100	0.0250	<i>JQ</i>
7440-22-4	<del>Silver</del>		<del>0.000400</del>	<del>0.00100</del>	<del>0.00250</del>	<del><i>U</i></del>
7440-23-5	Sodium	6.32	0.0500	0.100	0.125	
7440-28-0	Thallium		0.000350	0.0100	0.0250	U
7440-62-2	Vanadium		0.00400	0.0100	0.0250	U
7440-66-6	<del>Zinc</del>	<del>0.0261</del>	<del>0.00500</del>	<del>0.0200</del>	<del>0.0250</del>	<del><i>B mg</i></del>

Italicized = secondary result

*MW H019*

# 1 - FORM I

## ANALYSIS DATA SHEET

18111411

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Water	Laboratory ID:	18L0495-02RE1
		File ID:	121818.xml-042A
Sampled:	12/11/18 00:00	Prepared:	12/14/18 13:34
		Analyzed:	12/18/18 11:08
Solids:		Preparation:	3015_METALS_PREP_M
		Dilution:	5
Initial/Final:	40 ml / 50 ml		
Batch:	B8L0487	Sequence:	S8L0249
		Calibration:	EL80044
		Instrument:	ICP-MS iCAP Q

CAS NO.	COMPOUND	CONC. (mg/L)	MDL	LOD	RL	Q
7440-50-8	Copper	0.00819	0.00250	0.0100	0.0250	JQ
7439-92-1	Lead	0.00160	0.000400	0.00100	0.0250	JQ
7440-22-4	Silver		0.000400	0.00100	0.00250	U
7440-66-6	Zinc	<del>0.0168</del> <i>mu</i>	0.00500	0.0200	0.0250	U-J <del>Q</del> <i>mu</i>

Italicized = secondary result

*MH049*

**1 - FORM I**  
**ANALYSIS DATA SHEET**

18111411

Laboratory:	Environmental Monitoring and Tech			SDG:	10RB-2nd Set	
Client:	Ecology and Environment, Inc.			Project:	1004530.0470.001.01	
Matrix:	Water	Laboratory ID:	18L0495-02	File ID:	121818L-025	
Sampled:	12/11/18 00:00	Prepared:	12/18/18 07:30	Analyzed:	12/18/18 11:10	
Solids:		Preparation:	245-7470_HG_PREP	Dilution:	1	
Initial/Final:	50 ml / 50 ml					
Batch:	B8L0550	Sequence:	S8L0247	Calibration:	EL80043	Instrument: Hg Hydra

CAS NO.	COMPOUND	CONC. (mg/L)	MDL	LOD	RL	Q
7439-97-6	Mercury		0.00010	0.00025	0.00050	U

MW H0-19

# 1 - FORM I

## ANALYSIS DATA SHEET

18111412

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Water	Laboratory ID:	18L0492-01
		File ID:	121718A.xml-040
Sampled:	12/11/18 00:00	Prepared:	12/14/18 13:34
		Analyzed:	12/17/18 15:45
Solids:		Preparation:	3015_METALS_PREP_M: Dilution: 5
Initial/Final:	40 ml / 50 ml		
Batch:	B8L0487	Sequence:	S8L0240
		Calibration:	EL80041
		Instrument:	ICP-MS iCAP Q

CAS NO.	COMPOUND	CONC. (mg/L)	MDL	LOD	RL	Q
7429-90-5	Aluminum	3.71	0.0250	0.100	0.125	
7440-36-0	Antimony		0.00400	0.0100	0.0250	U
7440-38-2	Arsenic	0.0104	0.00400	0.0100	0.0250	JQ
7440-39-3	Barium	0.0937	0.00350	0.0100	0.0250	
7440-41-7	Beryllium		0.000400	0.00100	0.00250	U
7440-43-9	Cadmium	0.000367	0.000250	0.00100	0.00250	JQ
7440-70-2	Calcium	20.5	0.0500	0.100	0.125	pm
7440-47-3	Chromium	0.0107	0.00250	0.0100	0.0250	JQ
7440-48-4	Cobalt	0.00827	0.00300	0.0100	0.0250	JQ
7440-50-8	<del>Copper</del>	<del>0.0291</del>	<del>0.00250</del>	<del>0.0100</del>	<del>0.0250</del>	<del>rw</del>
7439-89-6	Iron	15.2	0.0500	0.100	0.125	
7439-92-1	<del>Lead</del>	<del>0.0319</del>	<del>0.000400</del>	<del>0.00100</del>	<del>0.0250</del>	<del>rw</del>
7439-95-4	Magnesium	5.56	0.0400	0.100	0.125	
7439-96-5	Manganese	4.12	0.00400	0.0100	0.0250	
7440-02-0	Nickel	0.0116	0.00400	0.0100	0.0250	JQ
7440-09-7	Potassium	4.56	0.0500	0.100	0.125	
7782-49-2	Selenium		0.00350	0.0100	0.0250	U
7440-22-4	<del>Silver</del>		<del>0.000400</del>	<del>0.00100</del>	<del>0.00250</del>	<del>U rw</del>
7440-23-5	Sodium	12.8	0.0500	0.100	0.125	
7440-28-0	Thallium		0.000350	0.0100	0.0250	U
7440-62-2	Vanadium	0.0180	0.00400	0.0100	0.0250	JQ
7440-66-6	<del>Zinc</del>	<del>0.107</del>	<del>0.00500</del>	<del>0.0200</del>	<del>0.0250</del>	<del>pm</del>

Italicized = secondary result

mm Hg 19



# 1 - FORM I

## ANALYSIS DATA SHEET

18111412

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Water	Laboratory ID:	18L0492-01RE1
		File ID:	121818.xml-039
Sampled:	12/11/18 00:00	Prepared:	12/14/18 13:34
		Analyzed:	12/18/18 11:03
Solids:		Preparation:	3015_METALS_PREP_M: Dilution: 5
Initial/Final:	40 ml / 50 ml		
Batch:	B8L0487	Sequence:	S8L0249
		Calibration:	EL80044
		Instrument:	ICP-MS iCAP Q

CAS NO.	COMPOUND	CONC. (mg/L)	MDL	LOD	RL	Q
7440-50-8	Copper	0.0281	0.00250	0.0100	0.0250	
7439-92-1	Lead	0.0323	0.000400	0.00100	0.0250	
7440-22-4	Silver		0.000400	0.00100	0.00250	U
7440-66-6	Zinc	0.101	0.00500	0.0200	0.0250	<i>P/mu</i>

Italicized = secondary result

*mw Holg*

**1 - FORM I**  
**ANALYSIS DATA SHEET**

18111412

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Water	Laboratory ID:	18L0492-01
		File ID:	121818L-021
Sampled:	12/11/18 00:00	Prepared:	12/18/18 07:30
		Analyzed:	12/18/18 11:02
Solids:		Preparation:	245-7470_HG_PREP
		Dilution:	1
Initial/Final:	50 ml / 50 ml		
Batch:	B8L0550	Sequence:	S8L0247
		Calibration:	EL80043
		Instrument:	Hg Hydra

CAS NO.	COMPOUND	CONC. (mg/L)	MDL	LOD	RL	Q
7439-97-6	Mercury		0.00010	0.00025	0.00050	U

*MuHota*

# 1 - FORM I ANALYSIS DATA SHEET

18111413

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Water	Laboratory ID:	18L0492-02
		File ID:	121718A.xml-041
Sampled:	12/11/18 00:00	Prepared:	12/14/18 13:34
		Analyzed:	12/17/18 15:47
Solids:		Preparation:	3015_METALS_PREP_M
		Dilution:	5
Initial/Final:	40 ml / 50 ml		
Batch:	B8L0487	Sequence:	S8L0240
		Calibration:	EL80041
		Instrument:	ICP-MS iCAP Q

CAS NO.	COMPOUND	CONC. (mg/L)	MDL	LOD	RL	Q
7429-90-5	Aluminum	0.0971	0.0250	0.100	0.125	JQ
7440-36-0	Antimony		0.00400	0.0100	0.0250	U
7440-38-2	Arsenic		0.00400	0.0100	0.0250	U
7440-39-3	Barium	0.0117	0.00350	0.0100	0.0250	JQ
7440-41-7	Beryllium		0.000400	0.00100	0.00250	U
7440-43-9	Cadmium		0.000250	0.00100	0.00250	U
7440-70-2	Calcium	10.1	0.0500	0.100	0.125	BW
7440-47-3	Chromium	0.00254	0.00250	0.0100	0.0250	JQ
7440-48-4	Cobalt		0.00300	0.0100	0.0250	U
7440-50-8	<del>Copper</del>		<del>0.00250</del>	<del>0.0100</del>	<del>0.0250</del>	<del>U</del> mw
7439-89-6	Iron	0.363	0.0500	0.100	0.125	
7439-92-1	<del>Lead</del>		<del>0.000400</del>	<del>0.00100</del>	<del>0.0250</del>	<del>U</del> mw
7439-95-4	Magnesium	3.36	0.0400	0.100	0.125	
7439-96-5	Manganese	0.123	0.00400	0.0100	0.0250	
7440-02-0	Nickel		0.00400	0.0100	0.0250	U
7440-09-7	Potassium	2.64	0.0500	0.100	0.125	
7782-49-2	Selenium		0.00350	0.0100	0.0250	U
7440-22-4	<del>Silver</del>		<del>0.000400</del>	<del>0.00100</del>	<del>0.00250</del>	<del>U</del> mw
7440-23-5	Sodium	12.3	0.0500	0.100	0.125	
7440-28-0	Thallium		0.000350	0.0100	0.0250	U
7440-62-2	Vanadium		0.00400	0.0100	0.0250	U
7440-66-6	<del>Zinc</del>	<del>0.00679</del>	<del>0.00500</del>	<del>0.0200</del>	<del>0.0250</del>	<del>JQ</del> mw

Italicized = secondary result

mw H019

**1 - FORM I**  
**ANALYSIS DATA SHEET**

18111413

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set				
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01				
Matrix:	Water	Laboratory ID:	18L0492-02RE1	File ID:	121818.xml-040		
Sampled:	12/11/18 00:00	Prepared:	12/14/18 13:34	Analyzed:	12/18/18 11:04		
Solids:		Preparation:	3015_METALS_PREP_M	Dilution:	5		
Initial/Final:	40 ml / 50 ml						
Batch:	B8L0487	Sequence:	S8L0249	Calibration:	EL80044	Instrument:	ICP-MS iCAP Q

CAS NO.	COMPOUND	CONC. (mg/L)	MDL	LOD	RL	Q
7440-50-8	Copper		0.00250	0.0100	0.0250	U
7439-92-1	Lead		0.000400	0.00100	0.0250	U
7440-22-4	Silver		0.000400	0.00100	0.00250	U
7440-66-6	Zinc		0.00500	0.0200	0.0250	U

Italicized = secondary result

*MW H049*

**1 - FORM I**  
**ANALYSIS DATA SHEET**

18111413

Laboratory:	Environmental Monitoring and Tech			SDG:	10RB-2nd Set	
Client:	Ecology and Environment, Inc.			Project:	1004530.0470.001.01	
Matrix:	Water	Laboratory ID:	18L0492-02	File ID:	121818L-022	
Sampled:	12/11/18 00:00	Prepared:	12/18/18 07:30	Analyzed:	12/18/18 11:04	
Solids:		Preparation:	245-7470_HG_PREP	Dilution:	1	
Initial/Final:	50 ml / 50 ml					
Batch:	B8L0550	Sequence:	S8L0247	Calibration:	EL80043	Instrument: Hg Hydra

CAS NO.	COMPOUND	CONC. (mg/L)	MDL	LOD	RL	Q
7439-97-6	Mercury		0.00010	0.00025	0.00050	U

mw H0-19



## ecology and environment, inc.

Global Environmental Specialists

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### MEMORANDUM

DATE: January 22, 2019

TO: Steve Hall, START-IV Project Manager, E & E, Seattle, Washington

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington *MW*

SUBJ: **Organic Data Quality Assurance Review, May Creek Removal Action Site, Renton, Washington**

REF: TO: TO-68HE0718F0470 PAN: 1004530.0470.001.01

The data quality assurance review of 19 soil and 10 water samples collected from the May Creek Removal Action site located in Renton, Washington, has been completed. Analyses for Chlorinated Pesticides (EPA Method 8081) and Polychlorinated Biphenyls (PCBs - EPA Method 8082) were performed by Environmental Monitoring and Technologies, Inc., Morton Grove, Illinois. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Manual Process (S2B/4VM).

The samples were numbered:

18111116	18111117	18111118	18111119	18111120
18111121	18111122	18111123	18111124	18111401
18111402	18111403	18111404	18111405	18111406
18111408	18111409	18111410	18111411	18111412
18111413	18111127	18111128	18111129	18111130
18111131	18111132	18111133	18111134	

#### Data Qualifications:

##### 1. Sample Holding Times: Acceptable.

The samples were maintained at 0°C to 6°C. The samples were collected between December 10 and 12, 2018, extracted by December 18, 2018, and were analyzed by December 20, 2018, therefore meeting QC criteria of less than 14 days between collection and soil sample extraction (7 days for water samples) and less than 40 days between extraction and analysis. There are no holding time limits for Method 8082 PCBs.

##### 2. Instrument Performance: Acceptable.

The surrogate retention time percent difference between the initial calibration standards and the remaining standards and samples was  $\leq 0.3\%$  for capillary column analyses.

##### 3. Initial and Continuing Calibration: Acceptable.

All initial calibration correlation coefficients were within QC limits. All continuing calibration %

differences (% D) were within QC limits on at least one column.

**4. Blanks: Acceptable.**

A method blank was prepared at the required frequency of every time samples were extracted for each matrix and for each concentration level, or every 20 samples, whichever is greater, and for each analytical system. No target analytes were detected in the laboratory blanks.

**5. Performance Evaluation Samples: Not Provided.**

Performance evaluation samples were not provided to the laboratory.

**6. System Monitoring Compounds (SMCs): Satisfactory.**

All recoveries of the SMCs were within QC limits except low pesticide DCB outliers in samples 18111116 through 18111124 and 18111128 (samples 18111118, 18111120, and 18111128 were low on only one column) and one high SMC in the PCB method blank (no actions were taken as there were no analytes detected in the method blank). Associated sample quantitation limits were qualified as estimated quantities with a low bias (UJL) and associated positive sample results were qualified as estimated quantities with a low bias (JL) for outliers on both columns per sample.

**7. Blank Spike (BS)/BS Duplicate (BSD) Analyses: Acceptable.**

BS and BSD recoveries were within QC limits.

**8. Matrix Spike (MS) and MS Duplicate (MSD) Analyses: Satisfactory.**

MS and MSD recoveries were within QC limits except for low endosulfan sulfate and endrin aldehyde results associated with sample 18111408, low endrin aldehyde and gamma chlordane results associated with sample 18L0454-03, and low endrin aldehyde results associated with sample B8L0589-MS1. No additional actions were taken based on these outliers.

**9. Duplicates: Satisfactory.**

Relative Percent Differences (RPDs) of all spiked analytes were within the required control limits except endosulfan sulfate and endrin aldehyde in sample 18111408. No additional actions were taken based on these outliers.

**10. Compound Identification: Acceptable.**

All positive sample results were dual-column confirmed with differences between the columns less than 25%.

**11. Target Compound Quantitation and Quantitation Limits: Acceptable.**

Sample results and quantitation limits were correctly calculated.

**12. Laboratory Contact**

No laboratory contact was required.

**13. Overall Assessment**

When primary and secondary (2C) results were listed on the same page, only the primary results

were considered (except the Pesticides 2C results for samples 18111127 through 18111134) unless otherwise noted on the results pages. Updates to the chlorinated pesticides pages were provided after the PCB results were completed; these pages have been combined in this memorandum.

A total of 783 results were validated in this data memorandum. No sample results were qualified as estimated quantities (J) based on duplicate precision outliers, holding time outliers, incorrect sample containers, or sample temperature outliers. No sample results were rejected (R). A total of 140 sample results were qualified as estimated quantities (UJ) based on spike accuracy outliers.

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the analytical method(s), the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, and/or the Office of Emergency and Remedial Response Publication "National Functional Guidelines for Superfund Organic Methods Data Review, January 2017". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

#### Data Qualifiers and Definitions

- H - The sample result is biased high.
- J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
- K - The bias of the sample is not known.
- L - The sample result is biased low.
- Q - Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.
- R - The data is rejected and unusable. The analyte may or may not be present in the sample.
- U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.



# 1 - FORM I

## ANALYSIS DATA SHEET

18111116

Laboratory:	Environmental Monitoring and Technologies, Inc	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0443-04
		File ID:	U18L18012
Sampled:	12/10/18 11:00	Prepared:	12/15/18 18:03
		Analyzed:	12/18/18 11:40
Solids:	77.81	Preparation:	3546_P
		Dilution:	1
Batch:	B8L0506	Sequence:	S8L0267
		Calibration:	EL80034
		Instrument:	U

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
72-54-8	4,4'-DDD	0.672	2.54	5.07	U	JL
72-54-8	4,4'-DDD [2C]	0.672	2.54	5.07	U	
72-55-9	4,4'-DDE	0.507	1.27	5.07	U	JL
72-55-9	4,4'-DDE [2C]	0.507	1.27	5.07	U	
50-29-3	4,4'-DDT	0.494	1.27	5.07	U	JL
50-29-3	4,4'-DDT [2C]	0.494	1.27	5.07	U	
309-00-2	Aldrin	0.431	1.27	5.07	U	JL
309-00-2	Aldrin [2C]	0.431	1.27	5.07	U	
319-84-6	alpha-BHC	0.482	1.27	5.07	U	JL
319-84-6	alpha-BHC [2C]	0.482	1.27	5.07	U	
5103-71-9	alpha-Chlordane	0.735	2.54	5.07	U	JL
5103-71-9	alpha-Chlordane [2C]	0.735	2.54	5.07	U	
319-85-7	beta-BHC	1.25	2.54	10.1	U	JL
319-85-7	beta-BHC [2C]	1.25	2.54	10.1	U	
319-86-8	delta-BHC	1.93	2.54	10.1	U	JL
319-86-8	delta-BHC [2C]	1.93	2.54	10.1	U	
60-57-1	Dieldrin	0.494	1.27	5.07	U	JL
60-57-1	Dieldrin [2C]	0.494	1.27	5.07	U	
959-98-8	Endosulfan I	0.456	1.27	5.07	U	JL
959-98-8	Endosulfan I [2C]	0.456	1.27	5.07	U	
33213-65-9	Endosulfan II	0.951	2.54	5.07	U	JL
33213-65-9	Endosulfan II [2C]	0.951	2.54	5.07	U	
1031-07-8	Endosulfan sulfate	1.77	5.07	10.1	U	JL
1031-07-8	Endosulfan sulfate [2C]	1.77	5.07	10.1	U	
72-20-8	Endrin	0.494	2.54	5.07	U	JL
72-20-8	Endrin [2C]	0.494	2.54	5.07	U	
7421-93-4	Endrin aldehyde	2.07	5.07	10.1	U	JL
7421-93-4	Endrin aldehyde [2C]	2.07	5.07	10.1	U	
53494-70-5	Endrin ketone	1.51	5.07	10.1	U	JL
53494-10-5	Endrin ketone [2C]	1.51	5.07	10.1	U	
58-89-9	gamma-BHC	0.558	2.54	5.07	U	JL

MW 122-19

# 1 - FORM I ANALYSIS DATA SHEET

18111116

Laboratory:	Environmental Monitoring and Technologies, Inc	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0443-04
		File ID:	U18L18012
Sampled:	12/10/18 11:00	Prepared:	12/15/18 18:03
		Analyzed:	12/18/18 11:40
Solids:	77.81	Preparation:	3546_P
		Dilution:	1
Batch:	B8L0506	Sequence:	S8L0267
		Calibration:	EL80034
		Instrument:	U

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
58-89-9	<i>gamma-BHC [2C]</i>		0.558	2.54	5.07	U
5566-34-7	gamma-Chlordane		0.596	2.54	5.07	U JL
5566-34-7	<i>gamma-Chlordane [2C]</i>		0.596	2.54	5.07	U
76-44-8	Heptachlor		0.545	2.54	5.07	U JL
76-44-8	<i>Heptachlor [2C]</i>		0.545	2.54	5.07	U
1024-57-3	Heptachlor epoxide		0.545	2.54	5.07	U JL
1024-57-3	<i>Heptachlor epoxide [2C]</i>		0.545	2.54	5.07	U
72-43-5	Methoxychlor		0.672	2.54	5.07	U JL
72-43-5	<i>Methoxychlor [2C]</i>		0.672	2.54	5.07	U
8001-35-2	Toxaphene		111	254	634	U JL
8001-35-2	<i>Toxaphene [2C]</i>		111	254	634	U

Italicized = secondary result

*mw 1-22-19*

# 1 - FORM I

## ANALYSIS DATA SHEET

18111116

Laboratory:	Environmental Monitoring and Technologies, Inc	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0443-04
		File ID:	A18L17007A
Sampled:	12/10/18 11:00	Prepared:	12/15/18 18:00
		Analyzed:	12/17/18 21:53
Solids:	77.81	Preparation:	3546_PCB
		Dilution:	1
Batch:	B8L0505	Sequence:	S8L0246
		Calibration:	EJ80066
		Instrument:	A

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
12674-11-2	Aroclor 1016		0.0592	0.190	0.254	U
11104-28-2	Aroclor 1221		0.167	0.380	0.634	U
11141-16-5	Aroclor 1232		0.0510	0.127	0.254	U
53469-21-9	Aroclor 1242		0.0479	0.127	0.254	U
12672-29-6	Aroclor 1248		0.0526	0.127	0.254	U
11097-69-1	Aroclor 1254		0.0532	0.127	0.254	U
11096-82-5	Aroclor 1260		0.0654	0.190	0.254	U
1336-36-3	Total PCB		0.167	0.380	0.634	U

Italicized = secondary result

*MW 1-2-19*

# 1 - FORM I

## ANALYSIS DATA SHEET

18111117

Laboratory:	Environmental Monitoring and Technologies, Inc	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0443-05
		File ID:	U18L18013
Sampled:	12/10/18 11:30	Prepared:	12/15/18 18:03
		Analyzed:	12/18/18 11:57
Solids:	78.07	Preparation:	3546_P
		Dilution:	1
Batch:	B8L0506	Sequence:	S8L0267
		Calibration:	EL80034
		Instrument:	U

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
72-54-8	4,4'-DDD	0.675	2.55	5.10	U	JL
72-54-8	4,4'-DDD [2C]	0.675	2.55	5.10	U	
72-55-9	4,4'-DDE	0.510	1.27	5.10	U	JL
72-55-9	4,4'-DDE [2C]	0.510	1.27	5.10	U	
50-29-3	4,4'-DDT	0.497	1.27	5.10	U	JL
50-29-3	4,4'-DDT [2C]	0.497	1.27	5.10	U	
309-00-2	Aldrin	0.433	1.27	5.10	U	JL
309-00-2	Aldrin [2C]	0.433	1.27	5.10	U	
319-84-6	alpha-BHC	0.484	1.27	5.10	U	JL
319-84-6	alpha-BHC [2C]	0.484	1.27	5.10	U	
5103-71-9	alpha-Chlordane	0.739	2.55	5.10	U	JL
5103-71-9	alpha-Chlordane [2C]	0.739	2.55	5.10	U	
319-85-7	beta-BHC	1.26	2.55	10.2	U	JL
319-85-7	beta-BHC [2C]	1.26	2.55	10.2	U	
319-86-8	delta-BHC	1.94	2.55	10.2	U	JL
319-86-8	delta-BHC [2C]	1.94	2.55	10.2	U	
60-57-1	Dieldrin	0.497	1.27	5.10	U	JL
60-57-1	Dieldrin [2C]	0.497	1.27	5.10	U	
959-98-8	Endosulfan I	0.459	1.27	5.10	U	JL
959-98-8	Endosulfan I [2C]	0.459	1.27	5.10	U	
33213-65-9	Endosulfan II	0.956	2.55	5.10	U	JL
33213-65-9	Endosulfan II [2C]	0.956	2.55	5.10	U	
1031-07-8	Endosulfan sulfate	1.78	5.10	10.2	U	JL
1031-07-8	Endosulfan sulfate [2C]	1.78	5.10	10.2	U	
72-20-8	Endrin	0.497	2.55	5.10	U	JL
72-20-8	Endrin [2C]	0.497	2.55	5.10	U	
7421-93-4	Endrin aldehyde	2.08	5.10	10.2	U	JL
7421-93-4	Endrin aldehyde [2C]	2.08	5.10	10.2	U	
53494-70-5	Endrin ketone	1.52	5.10	10.2	U	JL
53494-10-5	Endrin ketone [2C]	1.52	5.10	10.2	U	
58-89-9	gamma-BHC	0.561	2.55	5.10	U	JL

20w-22-19

# 1 - FORM I ANALYSIS DATA SHEET

18111117

Laboratory:	Environmental Monitoring and Technologies, Inc	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0443-05
		File ID:	U18L18013
Sampled:	12/10/18 11:30	Prepared:	12/15/18 18:03
		Analyzed:	12/18/18 11:57
Solids:	78.07	Preparation:	3546_P
		Dilution:	1
Batch:	B8L0506	Sequence:	S8L0267
		Calibration:	EL80034
		Instrument:	U

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
58-89-9	gamma-BHC [2C]		0.561	2.55	5.10	U
5566-34-7	gamma-Chlordane		0.599	2.55	5.10	U JL
5566-34-7	gamma-Chlordane [2C]		0.599	2.55	5.10	U
76-44-8	Heptachlor		0.548	2.55	5.10	U JL
76-44-8	Heptachlor [2C]		0.548	2.55	5.10	U
1024-57-3	Heptachlor epoxide		0.548	2.55	5.10	U JL
1024-57-3	Heptachlor epoxide [2C]		0.548	2.55	5.10	U
72-43-5	Methoxychlor		0.675	2.55	5.10	U JL
72-43-5	Methoxychlor [2C]		0.675	2.55	5.10	U
8001-35-2	Toxaphene		112	255	637	U JL
8001-35-2	Toxaphene [2C]		112	255	637	U

Italicized = secondary result

JW/22-19

**1 - FORM I**  
**ANALYSIS DATA SHEET**

18111117

Laboratory:	Environmental Monitoring and Technologies, Inc			SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.			Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0443-05	File ID:	A18L17008A
Sampled:	12/10/18 11:30	Prepared:	12/15/18 18:00	Analyzed:	12/17/18 22:18
Solids:	78.07	Preparation:	3546_PCB	Dilution:	1
Batch:	B8L0505	Sequence:	S8L0246	Calibration:	EJ80066
				Instrument:	A

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
12674-11-2	Aroclor 1016		0.0595	0.191	0.255	U
11104-28-2	Aroclor 1221		0.168	0.382	0.637	U
11141-16-5	Aroclor 1232		0.0512	0.127	0.255	U
53469-21-9	Aroclor 1242		0.0482	0.127	0.255	U
12672-29-6	Aroclor 1248		0.0529	0.127	0.255	U
11097-69-1	Aroclor 1254		0.0535	0.127	0.255	U
11096-82-5	Aroclor 1260		0.0658	0.191	0.255	U
1336-36-3	Total PCB		0.168	0.382	0.637	U

Italicized = secondary result

*MHofg*

# 1 - FORM I

## ANALYSIS DATA SHEET

18111118

Laboratory:	Environmental Monitoring and Technologies, Inc	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0443-06
		File ID:	U18L18014
Sampled:	12/10/18 13:45	Prepared:	12/15/18 18:03
		Analyzed:	12/18/18 12:14
Solids:	78.61	Preparation:	3546_P
		Dilution:	1
Batch:	B8L0506	Sequence:	S8L0267
		Calibration:	EL80034
		Instrument:	U

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
72-54-8	4,4'-DDD		0.338	1.27	2.55	U
72-54-8	4,4'-DDD [2C]		0.338	1.27	2.55	U
72-55-9	4,4'-DDE		0.255	0.637	2.55	U
72-55-9	4,4'-DDE [2C]		0.255	0.637	2.55	U
50-29-3	4,4'-DDT		0.249	0.637	2.55	U
50-29-3	4,4'-DDT [2C]		0.249	0.637	2.55	U
309-00-2	Aldrin		0.217	0.637	2.55	U
309-00-2	Aldrin [2C]		0.217	0.637	2.55	U
319-84-6	alpha-BHC		0.242	0.637	2.55	U
319-84-6	alpha-BHC [2C]		0.242	0.637	2.55	U
5103-71-9	alpha-Chlordane		0.370	1.27	2.55	U
5103-71-9	alpha-Chlordane [2C]		0.370	1.27	2.55	U
319-85-7	beta-BHC		0.631	1.27	5.10	U
319-85-7	beta-BHC [2C]		0.631	1.27	5.10	U
319-86-8	delta-BHC		0.969	1.27	5.10	U
319-86-8	delta-BHC [2C]		0.969	1.27	5.10	U
60-57-1	Dieldrin		0.249	0.637	2.55	U
60-57-1	Dieldrin [2C]		0.249	0.637	2.55	U
959-98-8	Endosulfan I		0.229	0.637	2.55	U
959-98-8	Endosulfan I [2C]		0.229	0.637	2.55	U
33213-65-9	Endosulfan II		0.478	1.27	2.55	U
33213-65-9	Endosulfan II [2C]		0.478	1.27	2.55	U
1031-07-8	Endosulfan sulfate		0.892	2.55	5.10	U
1031-07-8	Endosulfan sulfate [2C]		0.892	2.55	5.10	U
72-20-8	Endrin		0.249	1.27	2.55	U
72-20-8	Endrin [2C]		0.249	1.27	2.55	U
7421-93-4	Endrin aldehyde		1.04	2.55	5.10	U
7421-93-4	Endrin aldehyde [2C]		1.04	2.55	5.10	U
53494-70-5	Endrin ketone		0.758	2.55	5.10	U
53494-10-5	Endrin ketone [2C]		0.758	2.55	5.10	U
58-89-9	gamma-BHC		0.280	1.27	2.55	U

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*MW 12-19*

# 1 - FORM I

## ANALYSIS DATA SHEET

18111118

Laboratory:	Environmental Monitoring and Technologies, Inc	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0443-06
		File ID:	U18L18014
Sampled:	12/10/18 13:45	Prepared:	12/15/18 18:03
		Analyzed:	12/18/18 12:14
Solids:	78.61	Preparation:	3546_P
		Dilution:	1
Batch:	B8L0506	Sequence:	S8L0267
		Calibration:	EL80034
		Instrument:	U

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
58-89-9	<i>gamma-BHC [2C]</i>		0.280	1.27	2.55	U
5566-34-7	gamma-Chlordane		0.300	1.27	2.55	U
5566-34-7	<i>gamma-Chlordane [2C]</i>		0.300	1.27	2.55	U
76-44-8	Heptachlor		0.274	1.27	2.55	U
76-44-8	<i>Heptachlor [2C]</i>		0.274	1.27	2.55	U
1024-57-3	Heptachlor epoxide		0.274	1.27	2.55	U
1024-57-3	<i>Heptachlor epoxide [2C]</i>		0.274	1.27	2.55	U
72-43-5	Methoxychlor		0.338	1.27	2.55	U
72-43-5	<i>Methoxychlor [2C]</i>		0.338	1.27	2.55	U
8001-35-2	Toxaphene		55.8	127	319	U
8001-35-2	<i>Toxaphene [2C]</i>		55.8	127	319	U

Italicized = secondary result

*MW 12/18*



# 1 - FORM I

## ANALYSIS DATA SHEET

18111118

Laboratory:	Environmental Monitoring and Technologies, Inc	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0443-06
		File ID:	A18L17009A
Sampled:	12/10/18 13:45	Prepared:	12/15/18 18:00
		Analyzed:	12/17/18 22:42
Solids:	78.61	Preparation:	3546_PCB
		Dilution:	1
Batch:	B8L0505	Sequence:	S8L0246
		Calibration:	EJ80066
		Instrument:	A

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
12674-11-2	Aroclor 1016		0.0298	0.0956	0.127	U
11104-28-2	Aroclor 1221		0.0842	0.191	0.319	U
11141-16-5	Aroclor 1232		0.0256	0.0637	0.127	U
53469-21-9	Aroclor 1242		0.0241	0.0637	0.127	U
12672-29-6	Aroclor 1248		0.0265	0.0637	0.127	U
11097-69-1	Aroclor 1254		0.0268	0.0637	0.127	U
11096-82-5	Aroclor 1260		0.0329	0.0956	0.127	U
1336-36-3	Total PCB		0.0842	0.191	0.319	U

Italicized = secondary result

*MW HOLA*

# 1 - FORM I

## ANALYSIS DATA SHEET

18111119

Laboratory:	Environmental Monitoring and Technologies, Inc	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0443-07
		File ID:	U18L18015
Sampled:	12/10/18 14:20	Prepared:	12/15/18 18:03
		Analyzed:	12/18/18 12:30
Solids:	83.91	Preparation:	3546_P
		Dilution:	1
Batch:	B8L0506	Sequence:	S8L0267
		Calibration:	EL80034
		Instrument:	U

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
72-54-8	4,4'-DDD	0.315	1.19	2.38	U	JL
72-54-8	4,4'-DDD [2C]	0.315	1.19	2.38	U	
72-55-9	4,4'-DDE	0.238	0.594	2.38	U	JL
72-55-9	4,4'-DDE [2C]	0.238	0.594	2.38	U	
50-29-3	4,4'-DDT	0.232	0.594	2.38	U	JL
50-29-3	4,4'-DDT [2C]	0.232	0.594	2.38	U	
309-00-2	Aldrin	0.202	0.594	2.38	U	JL
309-00-2	Aldrin [2C]	0.202	0.594	2.38	U	
319-84-6	alpha-BHC	0.226	0.594	2.38	U	JL
319-84-6	alpha-BHC [2C]	0.226	0.594	2.38	U	
5103-71-9	alpha-Chlordane	0.345	1.19	2.38	U	JL
5103-71-9	alpha-Chlordane [2C]	0.345	1.19	2.38	U	
319-85-7	beta-BHC	0.588	1.19	4.75	U	JL
319-85-7	beta-BHC [2C]	0.588	1.19	4.75	U	
319-86-8	delta-BHC	0.903	1.19	4.75	U	JL
319-86-8	delta-BHC [2C]	0.903	1.19	4.75	U	
60-57-1	Dieldrin	0.232	0.594	2.38	U	JL
60-57-1	Dieldrin [2C]	0.232	0.594	2.38	U	
959-98-8	Endosulfan I	0.214	0.594	2.38	U	JL
959-98-8	Endosulfan I [2C]	0.214	0.594	2.38	U	
33213-65-9	Endosulfan II	0.446	1.19	2.38	U	JL
33213-65-9	Endosulfan II [2C]	0.446	1.19	2.38	U	
1031-07-8	Endosulfan sulfate	0.832	2.38	4.75	U	JL
1031-07-8	Endosulfan sulfate [2C]	0.832	2.38	4.75	U	
72-20-8	Endrin	0.232	1.19	2.38	U	JL
72-20-8	Endrin [2C]	0.232	1.19	2.38	U	
7421-93-4	Endrin aldehyde	0.968	2.38	4.75	U	JL
7421-93-4	Endrin aldehyde [2C]	0.968	2.38	4.75	U	
53494-70-5	Endrin ketone	0.707	2.38	4.75	U	JL
53494-10-5	Endrin ketone [2C]	0.707	2.38	4.75	U	
58-89-9	gamma-BHC	0.261	1.19	2.38	U	JL

12249

# 1 - FORM I

## ANALYSIS DATA SHEET

18111119

Laboratory:	Environmental Monitoring and Technologies, Inc	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0443-07
		File ID:	U18L18015
Sampled:	12/10/18 14:20	Prepared:	12/15/18 18:03
		Analyzed:	12/18/18 12:30
Solids:	83.91	Preparation:	3546_P
		Dilution:	1
Batch:	B8L0506	Sequence:	S8L0267
		Calibration:	EL80034
		Instrument:	U

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
58-89-9	<i>gamma-BHC [2C]</i>	0.261	1.19	2.38	U	
5566-34-7	gamma-Chlordane	0.279	1.19	2.38	U	JL
5566-34-7	<i>gamma-Chlordane [2C]</i>	0.279	1.19	2.38	U	
76-44-8	Heptachlor	0.255	1.19	2.38	U	JL
76-44-8	<i>Heptachlor [2C]</i>	0.255	1.19	2.38	U	
1024-57-3	Heptachlor epoxide	0.255	1.19	2.38	U	JL
1024-57-3	<i>Heptachlor epoxide [2C]</i>	0.255	1.19	2.38	U	
72-43-5	Methoxychlor	0.315	1.19	2.38	U	JL
72-43-5	<i>Methoxychlor [2C]</i>	0.315	1.19	2.38	U	
8001-35-2	Toxaphene	52.0	119	297	U	JL
8001-35-2	<i>Toxaphene [2C]</i>	52.0	119	297	U	

Italicized = secondary result

*Mw 12-19*

**1 - FORM I**  
**ANALYSIS DATA SHEET**

18111119

Laboratory:	Environmental Monitoring and Technologies, Inc			SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.			Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0443-07	File ID:	A18L17010A
Sampled:	12/10/18 14:20	Prepared:	12/15/18 18:00	Analyzed:	12/17/18 23:07
Solids:	83.91	Preparation:	3546_PCB	Dilution:	1
Batch:	B8L0505	Sequence:	S8L0246	Calibration:	EJ80066
				Instrument:	A

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
12674-11-2	Aroclor 1016		0.0277	0.0891	0.119	U
11104-28-2	Aroclor 1221		0.0785	0.178	0.297	U
11141-16-5	Aroclor 1232		0.0239	0.0594	0.119	U
53469-21-9	Aroclor 1242		0.0225	0.0594	0.119	U
12672-29-6	Aroclor 1248		0.0247	0.0594	0.119	U
11097-69-1	Aroclor 1254		0.0250	0.0594	0.119	U
11096-82-5	Aroclor 1260		0.0307	0.0891	0.119	U
1336-36-3	Total PCB		0.0785	0.178	0.297	U

Italicized = secondary result

*MW/10/19*

# 1 - FORM I

## ANALYSIS DATA SHEET

18111120

Laboratory:	Environmental Monitoring and Technologies, Inc	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0443-08
		File ID:	U18L18016
Sampled:	12/10/18 15:00	Prepared:	12/15/18 18:03
		Analyzed:	12/18/18 12:47
Solids:	89.88	Preparation:	3546_P
		Dilution:	1
Batch:	B8L0506	Sequence:	S8L0267
		Calibration:	EL80034
		Instrument:	U

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
72-54-8	4,4'-DDD		0.296	1.12	2.24	U
72-54-8	4,4'-DDD [2C]		0.296	1.12	2.24	U
72-55-9	4,4'-DDE		0.224	0.559	2.24	U
72-55-9	4,4'-DDE [2C]		0.224	0.559	2.24	U
50-29-3	4,4'-DDT		0.218	0.559	2.24	U
50-29-3	4,4'-DDT [2C]		0.218	0.559	2.24	U
309-00-2	Aldrin		0.190	0.559	2.24	U
309-00-2	Aldrin [2C]		0.190	0.559	2.24	U
319-84-6	alpha-BHC		0.213	0.559	2.24	U
319-84-6	alpha-BHC [2C]		0.213	0.559	2.24	U
5103-71-9	alpha-Chlordane		0.324	1.12	2.24	U
5103-71-9	alpha-Chlordane [2C]		0.324	1.12	2.24	U
319-85-7	beta-BHC		0.554	1.12	4.47	U
319-85-7	beta-BHC [2C]		0.554	1.12	4.47	U
319-86-8	delta-BHC		0.850	1.12	4.47	U
319-86-8	delta-BHC [2C]		0.850	1.12	4.47	U
60-57-1	Dieldrin		0.218	0.559	2.24	U
60-57-1	Dieldrin [2C]		0.218	0.559	2.24	U
959-98-8	Endosulfan I		0.201	0.559	2.24	U
959-98-8	Endosulfan I [2C]		0.201	0.559	2.24	U
33213-65-9	Endosulfan II		0.419	1.12	2.24	U
33213-65-9	Endosulfan II [2C]		0.419	1.12	2.24	U
1031-07-8	Endosulfan sulfate		0.783	2.24	4.47	U
1031-07-8	Endosulfan sulfate [2C]		0.783	2.24	4.47	U
72-20-8	Endrin		0.218	1.12	2.24	U
72-20-8	Endrin [2C]		0.218	1.12	2.24	U
7421-93-4	Endrin aldehyde		0.912	2.24	4.47	U
7421-93-4	Endrin aldehyde [2C]		0.912	2.24	4.47	U
53494-70-5	Endrin ketone		0.666	2.24	4.47	U
53494-10-5	Endrin ketone [2C]		0.666	2.24	4.47	U
58-89-9	gamma-BHC		0.246	1.12	2.24	U

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# 1 - FORM I

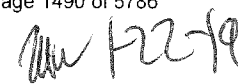
## ANALYSIS DATA SHEET

18111120

Laboratory:	Environmental Monitoring and Technologies, Inc	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0443-08
		File ID:	U18L18016
Sampled:	12/10/18 15:00	Prepared:	12/15/18 18:03
		Analyzed:	12/18/18 12:47
Solids:	89.88	Preparation:	3546_P
		Dilution:	1
Batch:	B8L0506	Sequence:	S8L0267
		Calibration:	EL80034
		Instrument:	U

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
58-89-9	<i>gamma-BHC [2C]</i>		0.246	1.12	2.24	U
5566-34-7	gamma-Chlordane		0.263	1.12	2.24	U
5566-34-7	<i>gamma-Chlordane [2C]</i>		0.263	1.12	2.24	U
76-44-8	Heptachlor		0.240	1.12	2.24	U
76-44-8	<i>Heptachlor [2C]</i>		0.240	1.12	2.24	U
1024-57-3	Heptachlor epoxide		0.240	1.12	2.24	U
1024-57-3	<i>Heptachlor epoxide [2C]</i>		0.240	1.12	2.24	U
72-43-5	Methoxychlor		0.296	1.12	2.24	U
72-43-5	<i>Methoxychlor [2C]</i>		0.296	1.12	2.24	U
8001-35-2	Toxaphene		48.9	112	280	U
8001-35-2	<i>Toxaphene [2C]</i>		48.9	112	280	U

Italicized = secondary result



**1 - FORM I**  
**ANALYSIS DATA SHEET**

18111120

Laboratory:	Environmental Monitoring and Technologies, Inc			SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.			Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0443-08	File ID:	A18L17011A
Sampled:	12/10/18 15:00	Prepared:	12/15/18 18:00	Analyzed:	12/17/18 23:31
Solids:	89.88	Preparation:	3546_PCB	Dilution:	1
Batch:	B8L0505	Sequence:	S8L0246	Calibration:	EJ80066
				Instrument:	A

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
12674-11-2	Aroclor 1016		0.0261	0.0839	0.112	U
11104-28-2	Aroclor 1221		0.0739	0.168	0.280	U
11141-16-5	Aroclor 1232		0.0225	0.0559	0.112	U
53469-21-9	Aroclor 1242		0.0211	0.0559	0.112	U
12672-29-6	Aroclor 1248		0.0232	0.0559	0.112	U
11097-69-1	Aroclor 1254		0.0235	0.0559	0.112	U
11096-82-5	Aroclor 1260		0.0289	0.0839	0.112	U
1336-36-3	Total PCB		0.0739	0.168	0.280	U

Italicized = secondary result

*MW Holg*

# 1 - FORM I

## ANALYSIS DATA SHEET

18111121

Laboratory:	Environmental Monitoring and Technologies, Inc	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0443-09
		File ID:	U18L19004
Sampled:	12/10/18 15:50	Prepared:	12/15/18 18:03
		Analyzed:	12/19/18 09:15
Solids:	80.80	Preparation:	3546_P
		Dilution:	20
Batch:	B8L0506	Sequence:	S8L0279
		Calibration:	EL80034
		Instrument:	U

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
72-54-8	4,4'-DDD [2C]	6.57	24.8	49.6	U	U
72-55-9	4,4'-DDE [2C]	4.96	12.4	49.6	U	U
50-29-3	4,4'-DDT [2C]	4.84	12.4	49.6	U	U
309-00-2	Aldrin [2C]	4.22	12.4	49.6	U	U
319-84-6	alpha-BHC [2C]	4.71	12.4	49.6	U	U
5103-71-9	alpha-Chlordane [2C]	7.19	24.8	49.6	U	U
319-85-7	beta-BHC [2C]	12.3	24.8	99.2	U	U
319-86-8	delta-BHC [2C]	18.8	24.8	99.2	U	U
60-57-1	Dieldrin [2C]	4.84	12.4	49.6	U	U
959-98-8	Endosulfan I [2C]	4.46	12.4	49.6	U	U
33213-65-9	Endosulfan II [2C]	9.30	24.8	49.6	U	U
1031-07-8	Endosulfan sulfate [2C]	17.4	49.6	99.2	U	U
72-20-8	Endrin [2C]	4.84	24.8	49.6	U	U
7421-93-4	Endrin aldehyde [2C]	20.2	49.6	99.2	U	U
53494-10-5	Endrin ketone [2C]	14.8	49.6	99.2	U	U
58-89-9	gamma-BHC [2C]	5.46	24.8	49.6	U	U
5566-34-7	gamma-Chlordane [2C]	5.83	24.8	49.6	U	U
76-44-8	Heptachlor [2C]	5.33	24.8	49.6	U	U
1024-57-3	Heptachlor epoxide [2C]	5.33	24.8	49.6	U	U
72-43-5	Methoxychlor [2C]	6.57	24.8	49.6	U	U
8001-35-2	Toxaphene [2C]	1080	2480	6200	U	U

Italicized = secondary result

*mw 12-19*



# 1 - FORM I

## ANALYSIS DATA SHEET

18111121

Laboratory:	Environmental Monitoring and Technologies, Inc	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0443-09RE1
		File ID:	A18L18003
Sampled:	12/10/18 15:50	Prepared:	12/15/18 18:00
		Analyzed:	12/18/18 10:46
Solids:	80.80	Preparation:	3546_PCB
		Dilution:	10
Batch:	B8L0505	Sequence:	S8L0246
		Calibration:	EJ80066
		Instrument:	A

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
12674-11-2	Aroclor 1016		0.290	0.930	1.24	U
11104-28-2	Aroclor 1221		0.819	1.86	3.10	U
11141-16-5	Aroclor 1232		0.249	0.620	1.24	U
53469-21-9	Aroclor 1242		0.234	0.620	1.24	U
12672-29-6	Aroclor 1248		0.257	0.620	1.24	U
11097-69-1	Aroclor 1254		0.260	0.620	1.24	U
11096-82-5	Aroclor 1260		0.320	0.930	1.24	U
1336-36-3	Total PCB		0.819	1.86	3.10	U

Italicized = secondary result

*MW Hotg*

# 1 - FORM I

## ANALYSIS DATA SHEET

18111122

Laboratory:	Environmental Monitoring and Technologies, Inc	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0443-01
		File ID:	U18L18009
Sampled:	12/11/18 09:40	Prepared:	12/15/18 18:03
		Analyzed:	12/18/18 10:50
Solids:	57.73	Preparation:	3546_P
		Dilution:	1
Batch:	B8L0506	Sequence:	S8L0267
		Calibration:	EL80034
		Instrument:	U

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
72-54-8	4,4'-DDD		0.455	1.72	3.44	U JL
72-54-8	4,4'-DDD [2C]		0.455	1.72	3.44	U
72-55-9	4,4'-DDE		0.344	0.859	3.44	U JL
72-55-9	4,4'-DDE [2C]		0.344	0.859	3.44	U
50-29-3	4,4'-DDT		0.335	0.859	3.44	U JL
50-29-3	4,4'-DDT [2C]		0.335	0.859	3.44	U
309-00-2	Aldrin		0.292	0.859	3.44	U JL
309-00-2	Aldrin [2C]		0.292	0.859	3.44	U
319-84-6	alpha-BHC		0.326	0.859	3.44	U JL
319-84-6	alpha-BHC [2C]		0.326	0.859	3.44	U
5103-71-9	alpha-Chlordane		0.498	1.72	3.44	U JL
5103-71-9	alpha-Chlordane [2C]		0.498	1.72	3.44	U
319-85-7	beta-BHC		0.850	1.72	6.87	U JL
319-85-7	beta-BHC [2C]		0.850	1.72	6.87	U
319-86-8	delta-BHC		1.31	1.72	6.87	U JL
319-86-8	delta-BHC [2C]		1.31	1.72	6.87	U
60-57-1	Dieldrin	14.5 JL	0.335	0.859	3.44	
<del>60-57-1</del>	<del>Dieldrin [2C]</del>	<del>12.2</del>	<del>0.335</del>	<del>0.859</del>	<del>3.44</del>	<del>U</del> MR
959-98-8	Endosulfan I		0.309	0.859	3.44	U JL
959-98-8	Endosulfan I [2C]		0.309	0.859	3.44	U
33213-65-9	Endosulfan II		0.644	1.72	3.44	U JL
33213-65-9	Endosulfan II [2C]		0.644	1.72	3.44	U
1031-07-8	Endosulfan sulfate		1.20	3.44	6.87	U JL
1031-07-8	Endosulfan sulfate [2C]		1.20	3.44	6.87	U
72-20-8	Endrin		0.335	1.72	3.44	U JL
72-20-8	Endrin [2C]		0.335	1.72	3.44	U
7421-93-4	Endrin aldehyde		1.40	3.44	6.87	U JL
7421-93-4	Endrin aldehyde [2C]		1.40	3.44	6.87	U
53494-70-5	Endrin ketone		1.02	3.44	6.87	U JL
53494-10-5	Endrin ketone [2C]		1.02	3.44	6.87	U
58-89-9	gamma-BHC		0.378	1.72	3.44	U JL

Jaw 12-19

# 1 - FORM I

## ANALYSIS DATA SHEET

18111122

Laboratory:	Environmental Monitoring and Technologies, Inc	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0443-01
		File ID:	U18L18009
Sampled:	12/11/18 09:40	Prepared:	12/15/18 18:03
		Analyzed:	12/18/18 10:50
Solids:	57.73	Preparation:	3546_P
		Dilution:	1
Batch:	B8L0506	Sequence:	S8L0267
		Calibration:	EL80034
		Instrument:	U

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
58-89-9	<i>gamma-BHC [2C]</i>	0.378	1.72	3.44	U	
5566-34-7	gamma-Chlordane	0.404	1.72	3.44	U	JL
5566-34-7	<i>gamma-Chlordane [2C]</i>	0.404	1.72	3.44	U	
76-44-8	Heptachlor	0.369	1.72	3.44	U	JL
76-44-8	<i>Heptachlor [2C]</i>	0.369	1.72	3.44	U	
1024-57-3	Heptachlor epoxide	0.369	1.72	3.44	U	JL
1024-57-3	<i>Heptachlor epoxide [2C]</i>	0.369	1.72	3.44	U	
72-43-5	Methoxychlor	0.455	1.72	3.44	U	JL
72-43-5	<i>Methoxychlor [2C]</i>	0.455	1.72	3.44	U	
8001-35-2	Toxaphene	75.2	172	429	U	JL
8001-35-2	<i>Toxaphene [2C]</i>	75.2	172	429	U	

Italicized = secondary result

*MW 12219*

# 1 - FORM I

## ANALYSIS DATA SHEET

18111122

Laboratory:	Environmental Monitoring and Technologies, Inc	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0443-01
		File ID:	A18L17004A
Sampled:	12/11/18 09:40	Prepared:	12/15/18 18:00
		Analyzed:	12/17/18 20:40
Solids:	57.73	Preparation:	3546_PCB
		Dilution:	1
Batch:	B8L0505	Sequence:	S8L0246
		Calibration:	EJ80066
		Instrument:	A

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
12674-11-2	Aroclor 1016		0.0401	0.129	0.172	U
11104-28-2	Aroclor 1221		0.113	0.258	0.429	U
11141-16-5	Aroclor 1232		0.0345	0.0859	0.172	U
53469-21-9	Aroclor 1242		0.0325	0.0859	0.172	U
12672-29-6	Aroclor 1248		0.0356	0.0859	0.172	U
11097-69-1	Aroclor 1254		0.0361	0.0859	0.172	U
11096-82-5	Aroclor 1260		0.0443	0.129	0.172	U
1336-36-3	Total PCB		0.113	0.258	0.429	U

Italicized = secondary result

*John H. H. 19*

# 1 - FORM I

## ANALYSIS DATA SHEET

18111123

Laboratory:	Environmental Monitoring and Technologies, Inc	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0443-02
		File ID:	U18L18010
Sampled:	12/11/18 09:50	Prepared:	12/15/18 18:03
		Analyzed:	12/18/18 11:07
Solids:	54.82	Preparation:	3546_P
		Dilution:	1
Batch:	B8L0506	Sequence:	S8L0267
		Calibration:	EL80034
		Instrument:	U

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
72-54-8	4,4'-DDD	0.485	1.83	3.66	U	JL
72-54-8	4,4'-DDD [2C]	0.485	1.83	3.66	U	
72-55-9	4,4'-DDE	0.366	0.914	3.66	U	JL
72-55-9	4,4'-DDE [2C]	0.366	0.914	3.66	U	
50-29-3	4,4'-DDT	0.357	0.914	3.66	U	JL
50-29-3	4,4'-DDT [2C]	0.357	0.914	3.66	U	
309-00-2	Aldrin	0.311	0.914	3.66	U	JL
309-00-2	Aldrin [2C]	0.311	0.914	3.66	U	
319-84-6	alpha-BHC	0.347	0.914	3.66	U	JL
319-84-6	alpha-BHC [2C]	0.347	0.914	3.66	U	
5103-71-9	alpha-Chlordane	0.530	1.83	3.66	U	JL
5103-71-9	alpha-Chlordane [2C]	0.530	1.83	3.66	U	
319-85-7	beta-BHC	0.905	1.83	7.31	U	JL
319-85-7	beta-BHC [2C]	0.905	1.83	7.31	U	
319-86-8	delta-BHC	1.39	1.83	7.31	U	JL
319-86-8	delta-BHC [2C]	1.39	1.83	7.31	U	
60-57-1	Dieldrin	0.357	0.914	3.66	U	JL
60-57-1	Dieldrin [2C]	0.357	0.914	3.66	U	
959-98-8	Endosulfan I	0.329	0.914	3.66	U	JL
959-98-8	Endosulfan I [2C]	0.329	0.914	3.66	U	
33213-65-9	Endosulfan II	0.686	1.83	3.66	U	JL
33213-65-9	Endosulfan II [2C]	0.686	1.83	3.66	U	
1031-07-8	Endosulfan sulfate	1.28	3.66	7.31	U	JL
1031-07-8	Endosulfan sulfate [2C]	1.28	3.66	7.31	U	
72-20-8	Endrin	0.357	1.83	3.66	U	JL
72-20-8	Endrin [2C]	0.357	1.83	3.66	U	
7421-93-4	Endrin aldehyde	1.49	3.66	7.31	U	JL
7421-93-4	Endrin aldehyde [2C]	1.49	3.66	7.31	U	
53494-70-5	Endrin ketone	1.09	3.66	7.31	U	JL
53494-10-5	Endrin ketone [2C]	1.09	3.66	7.31	U	
58-89-9	gamma-BHC	0.402	1.83	3.66	U	JL

11/12/19

# 1 - FORM I

## ANALYSIS DATA SHEET

18111123

Laboratory:	Environmental Monitoring and Technologies, Inc	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0443-02
		File ID:	U18L18010
Sampled:	12/11/18 09:50	Prepared:	12/15/18 18:03
		Analyzed:	12/18/18 11:07
Solids:	54.82	Preparation:	3546_P
		Dilution:	1
Batch:	B8L0506	Sequence:	S8L0267
		Calibration:	EL80034
		Instrument:	U

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
58-89-9	<i>gamma-BHC [2C]</i>	0.402	1.83	3.66	U	
5566-34-7	gamma-Chlordane	0.430	1.83	3.66	U	JL
5566-34-7	<i>gamma-Chlordane [2C]</i>	0.430	1.83	3.66	U	
76-44-8	Heptachlor	0.393	1.83	3.66	U	JL
76-44-8	<i>Heptachlor [2C]</i>	0.393	1.83	3.66	U	
1024-57-3	Heptachlor epoxide	0.393	1.83	3.66	U	JL
1024-57-3	<i>Heptachlor epoxide [2C]</i>	0.393	1.83	3.66	U	
72-43-5	Methoxychlor	0.485	1.83	3.66	U	JL
72-43-5	<i>Methoxychlor [2C]</i>	0.485	1.83	3.66	U	
8001-35-2	Toxaphene	80.0	183	457	U	JL
8001-35-2	<i>Toxaphene [2C]</i>	80.0	183	457	U	

Italicized = secondary result

*[Signature]* 122-18

**1 - FORM I**  
**ANALYSIS DATA SHEET**

18111123

Laboratory:	Environmental Monitoring and Technologies, Inc			SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.			Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0443-02	File ID:	A18L17005A
Sampled:	12/11/18 09:50	Prepared:	12/15/18 18:00	Analyzed:	12/17/18 21:04
Solids:	54.82	Preparation:	3546_PCB	Dilution:	1
Batch:	B8L0505	Sequence:	S8L0246	Calibration:	EJ80066
				Instrument:	A

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
12674-11-2	Aroclor 1016		0.0427	0.137	0.183	U
11104-28-2	Aroclor 1221		0.121	0.274	0.457	U
11141-16-5	Aroclor 1232		0.0367	0.0914	0.183	U
53469-21-9	Aroclor 1242		0.0346	0.0914	0.183	U
12672-29-6	Aroclor 1248		0.0379	0.0914	0.183	U
11097-69-1	Aroclor 1254		0.0384	0.0914	0.183	U
11096-82-5	Aroclor 1260		0.0472	0.137	0.183	U
1336-36-3	Total PCB		0.121	0.274	0.457	U

Italicized = secondary result

*MW/Hofe*

# 1 - FORM I

## ANALYSIS DATA SHEET

18111124

Laboratory:	Environmental Monitoring and Technologies, Inc	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0443-03
		File ID:	U18L18011
Sampled:	12/11/18 11:30	Prepared:	12/15/18 18:03
		Analyzed:	12/18/18 11:24
Solids:	67.31	Preparation:	3546_P
		Dilution:	1
Batch:	B8L0506	Sequence:	S8L0267
		Calibration:	EL80034
		Instrument:	U

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
72-54-8	4,4'-DDD	0.793	2.99	5.99	U	JL
72-54-8	4,4'-DDD [2C]	0.793	2.99	5.99	U	
72-55-9	4,4'-DDE	0.599	1.50	5.99	U	JL
72-55-9	4,4'-DDE [2C]	0.599	1.50	5.99	U	
50-29-3	4,4'-DDT	0.584	1.50	5.99	U	JL
50-29-3	4,4'-DDT [2C]	0.584	1.50	5.99	U	
309-00-2	Aldrin	0.509	1.50	5.99	U	JL
309-00-2	Aldrin [2C]	0.509	1.50	5.99	U	
319-84-6	alpha-BHC	0.569	1.50	5.99	U	JL
319-84-6	alpha-BHC [2C]	0.569	1.50	5.99	U	
5103-71-9	alpha-Chlordane	0.868	2.99	5.99	U	JL
5103-71-9	alpha-Chlordane [2C]	0.868	2.99	5.99	U	
319-85-7	beta-BHC	1.48	2.99	12.0	U	JL
319-85-7	beta-BHC [2C]	1.48	2.99	12.0	U	
319-86-8	delta-BHC	2.28	2.99	12.0	U	JL
319-86-8	delta-BHC [2C]	2.28	2.99	12.0	U	
60-57-1	Dieldrin	0.584	1.50	5.99	U	JL
60-57-1	Dieldrin [2C]	0.584	1.50	5.99	U	
959-98-8	Endosulfan I	0.539	1.50	5.99	U	JL
959-98-8	Endosulfan I [2C]	0.539	1.50	5.99	U	
33213-65-9	Endosulfan II	1.12	2.99	5.99	U	JL
33213-65-9	Endosulfan II [2C]	1.12	2.99	5.99	U	
1031-07-8	Endosulfan sulfate	2.10	5.99	12.0	U	JL
1031-07-8	Endosulfan sulfate [2C]	2.10	5.99	12.0	U	
72-20-8	Endrin	0.584	2.99	5.99	U	JL
72-20-8	Endrin [2C]	0.584	2.99	5.99	U	
7421-93-4	Endrin aldehyde	2.44	5.99	12.0	U	JL
7421-93-4	Endrin aldehyde [2C]	2.44	5.99	12.0	U	
53494-70-5	Endrin ketone	1.78	5.99	12.0	U	JL
53494-10-5	Endrin ketone [2C]	1.78	5.99	12.0	U	
58-89-9	gamma-BHC	0.659	2.99	5.99	U	JL

*Handwritten signature and date: 12-19*



# 1 - FORM I

## ANALYSIS DATA SHEET

18111124

Laboratory:	Environmental Monitoring and Technologies, Inc	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0443-03
		File ID:	U18L18011
Sampled:	12/11/18 11:30	Prepared:	12/15/18 18:03
		Analyzed:	12/18/18 11:24
Solids:	67.31	Preparation:	3546_P
		Dilution:	1
Batch:	B8L0506	Sequence:	S8L0267
		Calibration:	EL80034
		Instrument:	U

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
58-89-9	<i>gamma-BHC [2C]</i>	0.659	2.99	5.99	U	
5566-34-7	gamma-Chlordane	0.704	2.99	5.99	U	JL
5566-34-7	<i>gamma-Chlordane [2C]</i>	0.704	2.99	5.99	U	
76-44-8	Heptachlor	0.644	2.99	5.99	U	JL
76-44-8	<i>Heptachlor [2C]</i>	0.644	2.99	5.99	U	
1024-57-3	Heptachlor epoxide	0.644	2.99	5.99	U	JL
1024-57-3	<i>Heptachlor epoxide [2C]</i>	0.644	2.99	5.99	U	
72-43-5	Methoxychlor	0.793	2.99	5.99	U	JL
72-43-5	<i>Methoxychlor [2C]</i>	0.793	2.99	5.99	U	
8001-35-2	Toxaphene	131	299	748	U	JL
8001-35-2	<i>Toxaphene [2C]</i>	131	299	748	U	

Italicized = secondary result

*MW 12/24*

**1 - FORM I**  
**ANALYSIS DATA SHEET**

18111124

Laboratory:	Environmental Monitoring and Technologies, Inc			SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.			Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0443-03	File ID:	A18L17006A
Sampled:	12/11/18 11:30	Prepared:	12/15/18 18:00	Analyzed:	12/17/18 21:29
Solids:	67.31	Preparation:	3546_PCB	Dilution:	1
Batch:	B8L0505	Sequence:	S8L0246	Calibration:	EJ80066
				Instrument:	A

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
12674-11-2	Aroclor 1016		0.0699	0.225	0.299	U
11104-28-2	Aroclor 1221		0.198	0.449	0.748	U
11141-16-5	Aroclor 1232		0.0602	0.150	0.299	U
53469-21-9	Aroclor 1242		0.0566	0.150	0.299	U
12672-29-6	Aroclor 1248		0.0621	0.150	0.299	U
11097-69-1	Aroclor 1254		0.0629	0.150	0.299	U
11096-82-5	Aroclor 1260		0.0772	0.225	0.299	U
1336-36-3	Total PCB		0.198	0.449	0.748	U

Italicized = secondary result

*MWHolq*

# 1 - FORM I

## ANALYSIS DATA SHEET

18111127

Laboratory:	Environmental Monitoring and Technologies, Inc	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0510-03
		File ID:	U18L20009C
Sampled:	12/11/18 08:40	Prepared:	12/18/18 15:30
		Analyzed:	12/20/18 20:01
Solids:	87.09	Preparation:	3546_P
		Dilution:	5
Batch:	B8L0589	Sequence:	S8L0325
		Calibration:	EL80034
		Instrument:	U

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
72-54-8	4,4'-DDD		1.52	5.73	11.5	U
72-54-8	4,4'-DDD [2C]		1.52	5.73	11.5	U
72-55-9	4,4'-DDE		1.15	2.87	11.5	U
72-55-9	4,4'-DDE [2C]		1.15	2.87	11.5	U
50-29-3	4,4'-DDT		1.12	2.87	11.5	U
50-29-3	4,4'-DDT [2C]		1.12	2.87	11.5	U
309-00-2	Aldrin		0.975	2.87	11.5	U
309-00-2	Aldrin [2C]		0.975	2.87	11.5	U
319-84-6	alpha-BHC		1.09	2.87	11.5	U
319-84-6	alpha-BHC [2C]		1.09	2.87	11.5	U
5103-71-9	alpha-Chlordane		1.66	5.73	11.5	U
5103-71-9	alpha-Chlordane [2C]		1.66	5.73	11.5	U
319-85-7	beta-BHC		2.84	5.73	22.9	U
319-85-7	beta-BHC [2C]		2.84	5.73	22.9	U
319-86-8	delta-BHC		4.36	5.73	22.9	U
319-86-8	delta-BHC [2C]		4.36	5.73	22.9	U
60-57-1	Dieldrin		1.12	2.87	11.5	U
60-57-1	Dieldrin [2C]		1.12	2.87	11.5	U
959-98-8	Endosulfan I		1.03	2.87	11.5	U
959-98-8	Endosulfan I [2C]		1.03	2.87	11.5	U
33213-65-9	Endosulfan II		2.15	5.73	11.5	U
33213-65-9	Endosulfan II [2C]		2.15	5.73	11.5	U
1031-07-8	Endosulfan sulfate		4.01	11.5	22.9	U
1031-07-8	Endosulfan sulfate [2C]		4.01	11.5	22.9	U
72-20-8	Endrin		1.12	5.73	11.5	U
72-20-8	Endrin [2C]		1.12	5.73	11.5	U
7421-93-4	Endrin aldehyde		4.67	11.5	22.9	U
7421-93-4	Endrin aldehyde [2C]		4.67	11.5	22.9	U
53494-70-5	Endrin ketone		3.41	11.5	22.9	U
53494-10-5	Endrin ketone [2C]		3.41	11.5	22.9	U
58-89-9	gamma-BHC		1.26	5.73	11.5	U

*mw 1-22-19*

# 1 - FORM I

## ANALYSIS DATA SHEET

18111127

Laboratory:	Environmental Monitoring and Technologies, Inc	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0510-03
		File ID:	U18L20009C
Sampled:	12/11/18 08:40	Prepared:	12/18/18 15:30
		Analyzed:	12/20/18 20:01
Solids:	87.09	Preparation:	3546_P
		Dilution:	5
Batch:	B8L0589	Sequence:	S8L0325
		Calibration:	EL80034
		Instrument:	U

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
58-89-9	gamma-BHC [2C]		1.26	5.73	11.5	U
5566-34-7	<i>gamma-Chlordane</i>		1.35	5.73	11.5	U
5566-34-7	gamma-Chlordane [2C]		1.35	5.73	11.5	U
76-44-8	<i>Heptachlor</i>		1.23	5.73	11.5	U
76-44-8	Heptachlor [2C]		1.23	5.73	11.5	U
1024-57-3	<i>Heptachlor epoxide</i>		1.23	5.73	11.5	U
1024-57-3	Heptachlor epoxide [2C]		1.23	5.73	11.5	U
72-43-5	<i>Methoxychlor</i>		1.52	5.73	11.5	U
72-43-5	Methoxychlor [2C]		1.52	5.73	11.5	U
8001-35-2	<i>Toxaphene</i>		251	573	1430	U
8001-35-2	Toxaphene [2C]		251	573	1430	U

Italicized = secondary result

*12249*

**1 - FORM I**  
**ANALYSIS DATA SHEET**

18111127

Laboratory:	Environmental Monitoring and Technologies, Inc			SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.			Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0510-03	File ID:	A18L19015R
Sampled:	12/11/18 08:40	Prepared:	12/18/18 15:29	Analyzed:	12/19/18 18:15
Solids:	87.09	Preparation:	3546_PCB	Dilution:	1
Batch:	B8L0588	Sequence:	S8L0293	Calibration:	EJ80066
				Instrument:	A

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
12674-11-2	Aroclor 1016 [2C]		0.0268	0.0860	0.115	U
11104-28-2	Aroclor 1221 [2C]		0.0758	0.172	0.287	U
11141-16-5	Aroclor 1232 [2C]		0.0231	0.0573	0.115	U
53469-21-9	Aroclor 1242 [2C]		0.0217	0.0573	0.115	U
12672-29-6	Aroclor 1248 [2C]		0.0238	0.0573	0.115	U
11097-69-1	Aroclor 1254 [2C]		0.0241	0.0573	0.115	U
11096-82-5	Aroclor 1260 [2C]		0.0296	0.0860	0.115	U
1336-36-3	Total PCB [2C]		0.0758	0.172	0.287	U

Italicized = secondary result

*M. Hoya*

# 1 - FORM I

## ANALYSIS DATA SHEET

18111128

Laboratory:	Environmental Monitoring and Technologies, Inc	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0510-04
		File ID:	U18L20010C
Sampled:	12/12/18 10:00	Prepared:	12/18/18 15:30
		Analyzed:	12/20/18 20:18
Solids:	90.25	Preparation:	3546_P
		Dilution:	5
Batch:	B8L0589	Sequence:	S8L0325
		Calibration:	EL80034
		Instrument:	U

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
72-54-8	4,4'-DDD		1.48	5.59	11.2	U
72-54-8	4,4'-DDD [2C]		1.48	5.59	11.2	U
72-55-9	4,4'-DDE		1.12	2.80	11.2	U
72-55-9	4,4'-DDE [2C]		1.12	2.80	11.2	U
50-29-3	4,4'-DDT		1.09	2.80	11.2	U
50-29-3	4,4'-DDT [2C]		1.09	2.80	11.2	U
309-00-2	Aldrin		0.950	2.80	11.2	U
309-00-2	Aldrin [2C]		0.950	2.80	11.2	U
319-84-6	alpha-BHC		1.06	2.80	11.2	U
319-84-6	alpha-BHC [2C]		1.06	2.80	11.2	U
5103-71-9	alpha-Chlordane		1.62	5.59	11.2	U
5103-71-9	alpha-Chlordane [2C]		1.62	5.59	11.2	U
319-85-7	beta-BHC		2.77	5.59	22.4	U
319-85-7	beta-BHC [2C]		2.77	5.59	22.4	U
319-86-8	delta-BHC		4.25	5.59	22.4	U
319-86-8	delta-BHC [2C]		4.25	5.59	22.4	U
60-57-1	Dieldrin		1.09	2.80	11.2	U
60-57-1	Dieldrin [2C]		1.09	2.80	11.2	U
959-98-8	Endosulfan I		1.01	2.80	11.2	U
959-98-8	Endosulfan I [2C]		1.01	2.80	11.2	U
33213-65-9	Endosulfan II		2.10	5.59	11.2	U
33213-65-9	Endosulfan II [2C]		2.10	5.59	11.2	U
1031-07-8	Endosulfan sulfate		3.91	11.2	22.4	U
1031-07-8	Endosulfan sulfate [2C]		3.91	11.2	22.4	U
72-20-8	Endrin		1.09	5.59	11.2	U
72-20-8	Endrin [2C]		1.09	5.59	11.2	U
7421-93-4	Endrin aldehyde		4.56	11.2	22.4	U
7421-93-4	Endrin aldehyde [2C]		4.56	11.2	22.4	U
53494-70-5	Endrin ketone		3.33	11.2	22.4	U
53494-10-5	Endrin ketone [2C]		3.33	11.2	22.4	U
58-89-9	gamma-BHC		1.23	5.59	11.2	U

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*MW 1-22-19*

# 1 - FORM I

## ANALYSIS DATA SHEET

18111128

Laboratory:	Environmental Monitoring and Technologies, Inc	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0510-04
		File ID:	U18L20010C
Sampled:	12/12/18 10:00	Prepared:	12/18/18 15:30
		Analyzed:	12/20/18 20:18
Solids:	90.25	Preparation:	3546_P
		Dilution:	5
Batch:	B8L0589	Sequence:	S8L0325
		Calibration:	EL80034
		Instrument:	U

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
58-89-9	gamma-BHC [2C]		1.23	5.59	11.2	U
5566-34-7	<i>gamma-Chlordane</i>		1.31	5.59	11.2	U
5566-34-7	gamma-Chlordane [2C]		1.31	5.59	11.2	U
76-44-8	<i>Heptachlor</i>		1.20	5.59	11.2	U
76-44-8	Heptachlor [2C]		1.20	5.59	11.2	U
1024-57-3	<i>Heptachlor epoxide</i>		1.20	5.59	11.2	U
1024-57-3	Heptachlor epoxide [2C]		1.20	5.59	11.2	U
72-43-5	<i>Methoxychlor</i>		1.48	5.59	11.2	U
72-43-5	Methoxychlor [2C]		1.48	5.59	11.2	U
8001-35-2	<i>Toxaphene</i>		245	559	1400	U
8001-35-2	Toxaphene [2C]		245	559	1400	U

Italicized = secondary result

*MW 12249*

# 1 - FORM I

## ANALYSIS DATA SHEET

18111128

Laboratory:	Environmental Monitoring and Technologies, Inc	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0510-04
		File ID:	A18L19016R
Sampled:	12/12/18 10:00	Prepared:	12/18/18 15:29
		Analyzed:	12/19/18 18:41
Solids:	90.25	Preparation:	3546_PCB
		Dilution:	1
Batch:	B8L0588	Sequence:	S8L0293
		Calibration:	EJ80066
		Instrument:	A

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
12674-11-2	Aroclor 1016 [2C]		0.0261	0.0839	0.112	U
11104-28-2	Aroclor 1221 [2C]		0.0739	0.168	0.280	U
11141-16-5	Aroclor 1232 [2C]		0.0225	0.0559	0.112	U
53469-21-9	Aroclor 1242 [2C]		0.0211	0.0559	0.112	U
12672-29-6	Aroclor 1248 [2C]		0.0232	0.0559	0.112	U
11097-69-1	Aroclor 1254 [2C]		0.0235	0.0559	0.112	U
11096-82-5	Aroclor 1260 [2C]		0.0288	0.0839	0.112	U
1336-36-3	Total PCB [2C]		0.0739	0.168	0.280	U

Italicized = secondary result

*Mw Hoda*



# 1 - FORM I

## ANALYSIS DATA SHEET

18111129

Laboratory:	Environmental Monitoring and Technologies, Inc	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0510-05
		File ID:	U18L20011C
Sampled:	12/12/18 10:10	Prepared:	12/18/18 15:30
		Analyzed:	12/20/18 20:34
Solids:	90.33	Preparation:	3546_P
		Dilution:	5
Batch:	B8L0589	Sequence:	S8L0325
		Calibration:	EL80034
		Instrument:	U

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
72-54-8	4,4'-DDD		1.47	5.54	11.1	U
72-54-8	4,4'-DDD [2C]		1.47	5.54	11.1	U
72-55-9	4,4'-DDE		1.11	2.77	11.1	U
72-55-9	4,4'-DDE [2C]		1.11	2.77	11.1	U
50-29-3	4,4'-DDT		1.08	2.77	11.1	U
50-29-3	4,4'-DDT [2C]		1.08	2.77	11.1	U
309-00-2	Aldrin		0.942	2.77	11.1	U
309-00-2	Aldrin [2C]		0.942	2.77	11.1	U
319-84-6	alpha-BHC		1.05	2.77	11.1	U
319-84-6	alpha-BHC [2C]		1.05	2.77	11.1	U
5103-71-9	alpha-Chlordane		1.61	5.54	11.1	U
5103-71-9	alpha-Chlordane [2C]		1.61	5.54	11.1	U
319-85-7	beta-BHC		2.74	5.54	22.2	U
319-85-7	beta-BHC [2C]		2.74	5.54	22.2	U
319-86-8	delta-BHC		4.21	5.54	22.2	U
319-86-8	delta-BHC [2C]		4.21	5.54	22.2	U
60-57-1	Dieldrin		1.08	2.77	11.1	U
60-57-1	Dieldrin [2C]		1.08	2.77	11.1	U
959-98-8	Endosulfan I		0.997	2.77	11.1	U
959-98-8	Endosulfan I [2C]		0.997	2.77	11.1	U
33213-65-9	Endosulfan II		2.08	5.54	11.1	U
33213-65-9	Endosulfan II [2C]		2.08	5.54	11.1	U
1031-07-8	Endosulfan sulfate		3.88	11.1	22.2	U
1031-07-8	Endosulfan sulfate [2C]		3.88	11.1	22.2	U
72-20-8	Endrin		1.08	5.54	11.1	U
72-20-8	Endrin [2C]		1.08	5.54	11.1	U
7421-93-4	Endrin aldehyde		4.52	11.1	22.2	U
7421-93-4	Endrin aldehyde [2C]		4.52	11.1	22.2	U
53494-70-5	Endrin ketone		3.30	11.1	22.2	U
53494-10-5	Endrin ketone [2C]		3.30	11.1	22.2	U
58-89-9	gamma-BHC		1.22	5.54	11.1	U

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# 1 - FORM I

## ANALYSIS DATA SHEET

18111129

Laboratory:	Environmental Monitoring and Technologies, Inc	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0510-05
		File ID:	U18L20011C
Sampled:	12/12/18 10:10	Prepared:	12/18/18 15:30
		Analyzed:	12/20/18 20:34
Solids:	90.33	Preparation:	3546_P
		Dilution:	5
Batch:	B8L0589	Sequence:	S8L0325
		Calibration:	EL80034
		Instrument:	U

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
58-89-9	gamma-BHC [2C]		1.22	5.54	11.1	U
5566-34-7	<i>gamma-Chlordane</i>		1.30	5.54	11.1	U
5566-34-7	gamma-Chlordane [2C]		1.30	5.54	11.1	U
76-44-8	<i>Heptachlor</i>		1.19	5.54	11.1	U
76-44-8	Heptachlor [2C]		1.19	5.54	11.1	U
1024-57-3	<i>Heptachlor epoxide</i>		1.19	5.54	11.1	U
1024-57-3	Heptachlor epoxide [2C]		1.19	5.54	11.1	U
72-43-5	<i>Methoxychlor</i>		1.47	5.54	11.1	U
72-43-5	Methoxychlor [2C]		1.47	5.54	11.1	U
8001-35-2	<i>Toxaphene</i>		242	554	1390	U
8001-35-2	Toxaphene [2C]		242	554	1390	U

Italicized = secondary result

*Handwritten signature/initials*

**1 - FORM I**  
**ANALYSIS DATA SHEET**

18111129

Laboratory:	Environmental Monitoring and Technologies, Inc			SDG:	10RB-2nd Set	
Client:	Ecology and Environment, Inc.			Project:	1004530.0470.001.01	
Matrix:	Solid	Laboratory ID:	18L0510-05	File ID:	A18L19017R	
Sampled:	12/12/18 10:10	Prepared:	12/18/18 15:29	Analyzed:	12/19/18 19:08	
Solids:	90.33	Preparation:	3546_PCB	Dilution:	†	
Batch:	B8L0588	Sequence:	S8L0293	Calibration:	EJ80066	Instrument: A

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
12674-11-2	Aroclor 1016 [2C]		0.0259	0.0831	0.111	U
11104-28-2	Aroclor 1221 [2C]		0.0732	0.166	0.277	U
11141-16-5	Aroclor 1232 [2C]		0.0223	0.0554	0.111	U
53469-21-9	Aroclor 1242 [2C]		0.0209	0.0554	0.111	U
12672-29-6	Aroclor 1248 [2C]		0.0230	0.0554	0.111	U
11097-69-1	Aroclor 1254 [2C]		0.0233	0.0554	0.111	U
11096-82-5	Aroclor 1260 [2C]		0.0286	0.0831	0.111	U
1336-36-3	Total PCB [2C]		0.0732	0.166	0.277	U

Italicized = secondary result

*MW H049*

# 1 - FORM I

## ANALYSIS DATA SHEET

18111130

Laboratory:	Environmental Monitoring and Technologies, Inc	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0510-06
		File ID:	U18L20012C
Sampled:	12/12/18 12:00	Prepared:	12/18/18 15:30
		Analyzed:	12/20/18 20:51
Solids:	85.79	Preparation:	3546_P
		Dilution:	5
Batch:	B8L0589	Sequence:	S8L0325
		Calibration:	EL80034
		Instrument:	U

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
72-54-8	4,4'-DDD		1.55	5.85	11.7	U
72-54-8	4,4'-DDD [2C]		1.55	5.85	11.7	U
72-55-9	4,4'-DDE		1.17	2.92	11.7	U
72-55-9	4,4'-DDE [2C]		1.17	2.92	11.7	U
50-29-3	4,4'-DDT		1.14	2.92	11.7	U
50-29-3	4,4'-DDT [2C]		1.14	2.92	11.7	U
309-00-2	Aldrin		0.994	2.92	11.7	U
309-00-2	Aldrin [2C]		0.994	2.92	11.7	U
319-84-6	alpha-BHC		1.11	2.92	11.7	U
319-84-6	alpha-BHC [2C]		1.11	2.92	11.7	U
5103-71-9	alpha-Chlordane		1.70	5.85	11.7	U
5103-71-9	alpha-Chlordane [2C]		1.70	5.85	11.7	U
319-85-7	beta-BHC		2.90	5.85	23.4	U
319-85-7	beta-BHC [2C]		2.90	5.85	23.4	U
319-86-8	delta-BHC		4.45	5.85	23.4	U
319-86-8	delta-BHC [2C]		4.45	5.85	23.4	U
60-57-1	Dieldrin		1.14	2.92	11.7	U
60-57-1	Dieldrin [2C]		1.14	2.92	11.7	U
959-98-8	Endosulfan I		1.05	2.92	11.7	U
959-98-8	Endosulfan I [2C]		1.05	2.92	11.7	U
33213-65-9	Endosulfan II		2.19	5.85	11.7	U
33213-65-9	Endosulfan II [2C]		2.19	5.85	11.7	U
1031-07-8	Endosulfan sulfate		4.09	11.7	23.4	U
1031-07-8	Endosulfan sulfate [2C]		4.09	11.7	23.4	U
72-20-8	Endrin		1.14	5.85	11.7	U
72-20-8	Endrin [2C]		1.14	5.85	11.7	U
7421-93-4	Endrin aldehyde		4.77	11.7	23.4	U
7421-93-4	Endrin aldehyde [2C]		4.77	11.7	23.4	U
53494-70-5	Endrin ketone		3.48	11.7	23.4	U
53494-10-5	Endrin ketone [2C]		3.48	11.7	23.4	U
58-89-9	gamma-BHC		1.29	5.85	11.7	U

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# 1 - FORM I

## ANALYSIS DATA SHEET

18111130

Laboratory:	Environmental Monitoring and Technologies, Inc	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0510-06
		File ID:	U18L20012C
Sampled:	12/12/18 12:00	Prepared:	12/18/18 15:30
		Analyzed:	12/20/18 20:51
Solids:	85.79	Preparation:	3546_P
		Dilution:	5
Batch:	B8L0589	Sequence:	S8L0325
		Calibration:	EL80034
		Instrument:	U

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
58-89-9	gamma-BHC [2C]		1.29	5.85	11.7	U
5566-34-7	<i>gamma-Chlordane</i>		1.37	5.85	11.7	U
5566-34-7	gamma-Chlordane [2C]		1.37	5.85	11.7	U
76-44-8	<i>Heptachlor</i>		1.26	5.85	11.7	U
76-44-8	Heptachlor [2C]		1.26	5.85	11.7	U
1024-57-3	<i>Heptachlor epoxide</i>		1.26	5.85	11.7	U
1024-57-3	Heptachlor epoxide [2C]		1.26	5.85	11.7	U
72-43-5	<i>Methoxychlor</i>		1.55	5.85	11.7	U
72-43-5	Methoxychlor [2C]		1.55	5.85	11.7	U
8001-35-2	<i>Toxaphene</i>		256	585	1460	U
8001-35-2	Toxaphene [2C]		256	585	1460	U

Italicized = secondary result

# 1 - FORM I

## ANALYSIS DATA SHEET

18111130

Laboratory:	Environmental Monitoring and Technologies, Inc	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0510-06
		File ID:	A18L19018R
Sampled:	12/12/18 12:00	Prepared:	12/18/18 15:29
		Analyzed:	12/19/18 19:35
Solids:	85.79	Preparation:	3546_PCB
		Dilution:	1
Batch:	B8L0588	Sequence:	S8L0293
		Calibration:	EJ80066
		Instrument:	A

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
12674-11-2	Aroclor 1016 [2C]		0.0273	0.0877	0.117	U
11104-28-2	Aroclor 1221 [2C]		0.0773	0.175	0.292	U
11141-16-5	Aroclor 1232 [2C]		0.0235	0.0585	0.117	U
53469-21-9	Aroclor 1242 [2C]		0.0221	0.0585	0.117	U
12672-29-6	Aroclor 1248 [2C]		0.0243	0.0585	0.117	U
11097-69-1	Aroclor 1254 [2C]		0.0246	0.0585	0.117	U
11096-82-5	Aroclor 1260 [2C]		0.0302	0.0877	0.117	U
1336-36-3	Total PCB [2C]		0.0773	0.175	0.292	U

Italicized = secondary result

*John H. H. H.*

# 1 - FORM I

## ANALYSIS DATA SHEET

18111131

Laboratory:	Environmental Monitoring and Technologies, Inc	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0510-07
		File ID:	U18L20008C
Sampled:	12/12/18 12:10	Prepared:	12/18/18 15:30
		Analyzed:	12/20/18 19:45
Solids:	91.94	Preparation:	3546_P
		Dilution:	5
Batch:	B8L0589	Sequence:	S8L0325
		Calibration:	EL80034
		Instrument:	U

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
72-54-8	4,4'-DDD		1.43	5.41	10.8	U
72-54-8	4,4'-DDD [2C]		1.43	5.41	10.8	U
72-55-9	4,4'-DDE		1.08	2.71	10.8	U
72-55-9	4,4'-DDE [2C]		1.08	2.71	10.8	U
50-29-3	4,4'-DDT		1.06	2.71	10.8	U
50-29-3	4,4'-DDT [2C]		1.06	2.71	10.8	U
309-00-2	Aldrin		0.920	2.71	10.8	U
309-00-2	Aldrin [2C]		0.920	2.71	10.8	U
319-84-6	alpha-BHC		1.03	2.71	10.8	U
319-84-6	alpha-BHC [2C]		1.03	2.71	10.8	U
5103-71-9	alpha-Chlordane		1.57	5.41	10.8	U
5103-71-9	alpha-Chlordane [2C]		1.57	5.41	10.8	U
319-85-7	beta-BHC		2.68	5.41	21.7	U
319-85-7	beta-BHC [2C]		2.68	5.41	21.7	U
319-86-8	delta-BHC		4.12	5.41	21.7	U
319-86-8	delta-BHC [2C]		4.12	5.41	21.7	U
60-57-1	Dieldrin		1.06	2.71	10.8	U
60-57-1	Dieldrin [2C]		1.06	2.71	10.8	U
959-98-8	Endosulfan I		0.975	2.71	10.8	U
959-98-8	Endosulfan I [2C]		0.975	2.71	10.8	U
33213-65-9	Endosulfan II		2.03	5.41	10.8	U
33213-65-9	Endosulfan II [2C]		2.03	5.41	10.8	U
1031-07-8	Endosulfan sulfate		3.79	10.8	21.7	U
1031-07-8	Endosulfan sulfate [2C]		3.79	10.8	21.7	U
72-20-8	Endrin		1.06	5.41	10.8	U
72-20-8	Endrin [2C]		1.06	5.41	10.8	U
7421-93-4	Endrin aldehyde		4.41	10.8	21.7	U
7421-93-4	Endrin aldehyde [2C]		4.41	10.8	21.7	U
53494-70-5	Endrin ketone		3.22	10.8	21.7	U
53494-10-5	Endrin ketone [2C]		3.22	10.8	21.7	U
58-89-9	gamma-BHC		1.19	5.41	10.8	U

7/22/19

# 1 - FORM I

## ANALYSIS DATA SHEET

18111131

Laboratory:	Environmental Monitoring and Technologies, Inc	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0510-07
		File ID:	U18L20008C
Sampled:	12/12/18 12:10	Prepared:	12/18/18 15:30
		Analyzed:	12/20/18 19:45
Solids:	91.94	Preparation:	3546_P
		Dilution:	5
Batch:	B8L0589	Sequence:	S8L0325
		Calibration:	EL80034
		Instrument:	U

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
58-89-9	gamma-BHC [2C]		1.19	5.41	10.8	U
5566-34-7	<i>gamma-Chlordane</i>		1.27	5.41	10.8	U
5566-34-7	gamma-Chlordane [2C]		1.27	5.41	10.8	U
76-44-8	<i>Heptachlor</i>		1.16	5.41	10.8	U
76-44-8	Heptachlor [2C]		1.16	5.41	10.8	U
1024-57-3	<i>Heptachlor epoxide</i>		1.16	5.41	10.8	U
1024-57-3	Heptachlor epoxide [2C]		1.16	5.41	10.8	U
72-43-5	<i>Methoxychlor</i>		1.43	5.41	10.8	U
72-43-5	Methoxychlor [2C]		1.43	5.41	10.8	U
8001-35-2	<i>Toxaphene</i>		237	541	1350	U
8001-35-2	Toxaphene [2C]		237	541	1350	U

Italicized = secondary result

*MW 12249*



# 1 - FORM I

## ANALYSIS DATA SHEET

18111131

Laboratory:	Environmental Monitoring and Technologies, Inc	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0510-07
		File ID:	A18L19010R
Sampled:	12/12/18 12:10	Prepared:	12/18/18 15:29
		Analyzed:	12/19/18 16:01
Solids:	91.94	Preparation:	3546_PCB
		Dilution:	1
Batch:	B8L0588	Sequence:	S8L0293
		Calibration:	EJ80066
		Instrument:	A

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
12674-11-2	Aroclor 1016 [2C]		0.0253	0.0812	0.108	U
11104-28-2	Aroclor 1221 [2C]		0.0715	0.162	0.271	U
11141-16-5	Aroclor 1232 [2C]		0.0218	0.0541	0.108	U
53469-21-9	Aroclor 1242 [2C]		0.0205	0.0541	0.108	U
12672-29-6	Aroclor 1248 [2C]		0.0225	0.0541	0.108	U
11097-69-1	Aroclor 1254 [2C]		0.0227	0.0541	0.108	U
11096-82-5	Aroclor 1260 [2C]		0.0279	0.0812	0.108	U
1336-36-3	Total PCB [2C]		0.0715	0.162	0.271	U

Italicized = secondary result

*MWH019*

# 1 - FORM I

## ANALYSIS DATA SHEET

18111132

Laboratory:	Environmental Monitoring and Technologies, Inc	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0510-08
		File ID:	U18L20013C
Sampled:	12/12/18 14:30	Prepared:	12/18/18 15:30
		Analyzed:	12/20/18 21:08
Solids:	87.17	Preparation:	3546_P
		Dilution:	5
Batch:	B8L0589	Sequence:	S8L0325
		Calibration:	EL80034
		Instrument:	U

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
72-54-8	4,4'-DDD		1.51	5.68	11.4	U
72-54-8	4,4'-DDD [2C]		1.51	5.68	11.4	U
72-55-9	4,4'-DDE		1.14	2.84	11.4	U
72-55-9	4,4'-DDE [2C]		1.14	2.84	11.4	U
50-29-3	4,4'-DDT		1.11	2.84	11.4	U
50-29-3	4,4'-DDT [2C]		1.11	2.84	11.4	U
309-00-2	Aldrin		0.965	2.84	11.4	U
309-00-2	Aldrin [2C]		0.965	2.84	11.4	U
319-84-6	alpha-BHC		1.08	2.84	11.4	U
319-84-6	alpha-BHC [2C]		1.08	2.84	11.4	U
5103-71-9	alpha-Chlordane		1.65	5.68	11.4	U
5103-71-9	alpha-Chlordane [2C]		1.65	5.68	11.4	U
319-85-7	beta-BHC		2.81	5.68	22.7	U
319-85-7	beta-BHC [2C]		2.81	5.68	22.7	U
319-86-8	delta-BHC		4.32	5.68	22.7	U
319-86-8	delta-BHC [2C]		4.32	5.68	22.7	U
60-57-1	Dieldrin		1.11	2.84	11.4	U
60-57-1	Dieldrin [2C]		1.11	2.84	11.4	U
959-98-8	Endosulfan I		1.02	2.84	11.4	U
959-98-8	Endosulfan I [2C]		1.02	2.84	11.4	U
33213-65-9	Endosulfan II		2.13	5.68	11.4	U
33213-65-9	Endosulfan II [2C]		2.13	5.68	11.4	U
1031-07-8	Endosulfan sulfate		3.98	11.4	22.7	U
1031-07-8	Endosulfan sulfate [2C]		3.98	11.4	22.7	U
72-20-8	Endrin		1.11	5.68	11.4	U
72-20-8	Endrin [2C]		1.11	5.68	11.4	U
7421-93-4	Endrin aldehyde		4.63	11.4	22.7	U
7421-93-4	Endrin aldehyde [2C]		4.63	11.4	22.7	U
53494-70-5	Endrin ketone		3.38	11.4	22.7	U
53494-10-5	Endrin ketone [2C]		3.38	11.4	22.7	U
58-89-9	gamma-BHC		1.25	5.68	11.4	U

MW 1-22-10

# 1 - FORM I

## ANALYSIS DATA SHEET

18111132

Laboratory:	Environmental Monitoring and Technologies, Inc	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0510-08
		File ID:	U18L20013C
Sampled:	12/12/18 14:30	Prepared:	12/18/18 15:30
		Analyzed:	12/20/18 21:08
Solids:	87.17	Preparation:	3546_P
		Dilution:	5
Batch:	B8L0589	Sequence:	S8L0325
		Calibration:	EL80034
		Instrument:	U

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
58-89-9	gamma-BHC [2C]		1.25	5.68	11.4	U
5566-34-7	<i>gamma-Chlordane</i>		1.33	5.68	11.4	U
5566-34-7	gamma-Chlordane [2C]		1.33	5.68	11.4	U
76-44-8	<i>Heptachlor</i>		1.22	5.68	11.4	U
76-44-8	Heptachlor [2C]		1.22	5.68	11.4	U
1024-57-3	<i>Heptachlor epoxide</i>		1.22	5.68	11.4	U
1024-57-3	Heptachlor epoxide [2C]		1.22	5.68	11.4	U
72-43-5	<i>Methoxychlor</i>		1.51	5.68	11.4	U
72-43-5	Methoxychlor [2C]		1.51	5.68	11.4	U
8001-35-2	<i>Toxaphene</i>		248	568	1420	U
8001-35-2	Toxaphene [2C]		248	568	1420	U

Italicized = secondary result

*MW 1-22-19*

# 1 - FORM I ANALYSIS DATA SHEET

18111132

Laboratory:	Environmental Monitoring and Technologies, Inc	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0510-08
		File ID:	A18L19019R
Sampled:	12/12/18 14:30	Prepared:	12/18/18 15:29
		Analyzed:	12/19/18 20:01
Solids:	87.17	Preparation:	3546_PCB
		Dilution:	1
Batch:	B8L0588	Sequence:	S8L0293
		Calibration:	EJ80066
		Instrument:	A

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
12674-11-2	Aroclor 1016 [2C]		0.0265	0.0852	0.114	U
11104-28-2	Aroclor 1221 [2C]		0.0750	0.170	0.284	U
11141-16-5	Aroclor 1232 [2C]		0.0228	0.0568	0.114	U
53469-21-9	Aroclor 1242 [2C]		0.0215	0.0568	0.114	U
12672-29-6	Aroclor 1248 [2C]		0.0236	0.0568	0.114	U
11097-69-1	Aroclor 1254 [2C]		0.0239	0.0568	0.114	U
11096-82-5	Aroclor 1260 [2C]		0.0293	0.0852	0.114	U
1336-36-3	Total PCB [2C]		0.0750	0.170	0.284	U

Italicized = secondary result

*MwH019*

# 1 - FORM I

## ANALYSIS DATA SHEET

18111133

Laboratory:	Environmental Monitoring and Technologies, Inc	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0510-09
		File ID:	U18L20014C
Sampled:	12/12/18 15:00	Prepared:	12/18/18 15:30
		Analyzed:	12/20/18 21:24
Solids:	81.84	Preparation:	3546_P
		Dilution:	5
Batch:	B8L0589	Sequence:	S8L0325
		Calibration:	EL80034
		Instrument:	U

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
72-54-8	4,4'-DDD		1.61	6.09	12.2	U
72-54-8	4,4'-DDD [2C]		1.61	6.09	12.2	U
72-55-9	4,4'-DDE		1.22	3.04	12.2	U
72-55-9	4,4'-DDE [2C]		1.22	3.04	12.2	U
50-29-3	4,4'-DDT		1.19	3.04	12.2	U
50-29-3	4,4'-DDT [2C]		1.19	3.04	12.2	U
309-00-2	Aldrin		1.03	3.04	12.2	U
309-00-2	Aldrin [2C]		1.03	3.04	12.2	U
319-84-6	alpha-BHC		1.16	3.04	12.2	U
319-84-6	alpha-BHC [2C]		1.16	3.04	12.2	U
5103-71-9	alpha-Chlordane		1.77	6.09	12.2	U
5103-71-9	alpha-Chlordane [2C]		1.77	6.09	12.2	U
319-85-7	beta-BHC		3.01	6.09	24.3	U
319-85-7	beta-BHC [2C]		3.01	6.09	24.3	U
319-86-8	delta-BHC		4.63	6.09	24.3	U
319-86-8	delta-BHC [2C]		4.63	6.09	24.3	U
60-57-1	Dieldrin		1.19	3.04	12.2	U
60-57-1	Dieldrin [2C]		1.19	3.04	12.2	U
959-98-8	Endosulfan I		1.10	3.04	12.2	U
959-98-8	Endosulfan I [2C]		1.10	3.04	12.2	U
33213-65-9	Endosulfan II		2.28	6.09	12.2	U
33213-65-9	Endosulfan II [2C]		2.28	6.09	12.2	U
1031-07-8	Endosulfan sulfate		4.26	12.2	24.3	U
1031-07-8	Endosulfan sulfate [2C]		4.26	12.2	24.3	U
72-20-8	Endrin		1.19	6.09	12.2	U
72-20-8	Endrin [2C]		1.19	6.09	12.2	U
7421-93-4	Endrin aldehyde		4.96	12.2	24.3	U
7421-93-4	Endrin aldehyde [2C]		4.96	12.2	24.3	U
53494-70-5	Endrin ketone		3.62	12.2	24.3	U
53494-10-5	Endrin ketone [2C]		3.62	12.2	24.3	U
58-89-9	gamma-BHC		1.34	6.09	12.2	U

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# 1 - FORM I

## ANALYSIS DATA SHEET

18111133

Laboratory:	Environmental Monitoring and Technologies, Inc	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0510-09
		File ID:	U18L20014C
Sampled:	12/12/18 15:00	Prepared:	12/18/18 15:30
		Analyzed:	12/20/18 21:24
Solids:	81.84	Preparation:	3546_P
		Dilution:	5
Batch:	B8L0589	Sequence:	S8L0325
		Calibration:	EL80034
		Instrument:	U

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
58-89-9	gamma-BHC [2C]		1.34	6.09	12.2	U
5566-34-7	<i>gamma-Chlordane</i>		1.43	6.09	12.2	U
5566-34-7	gamma-Chlordane [2C]		1.43	6.09	12.2	U
76-44-8	<i>Heptachlor</i>		1.31	6.09	12.2	U
76-44-8	Heptachlor [2C]		1.31	6.09	12.2	U
1024-57-3	<i>Heptachlor epoxide</i>		1.31	6.09	12.2	U
1024-57-3	Heptachlor epoxide [2C]		1.31	6.09	12.2	U
72-43-5	<i>Methoxychlor</i>		1.61	6.09	12.2	U
72-43-5	Methoxychlor [2C]		1.61	6.09	12.2	U
8001-35-2	<i>Toxaphene</i>		266	609	1520	U
8001-35-2	Toxaphene [2C]		266	609	1520	U

Italicized = secondary result

*MW (-22-19)*

# 1 - FORM I

## ANALYSIS DATA SHEET

18111133

Laboratory:	Environmental Monitoring and Technologies, Inc	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0510-09
		File ID:	A18L19020R
Sampled:	12/12/18 15:00	Prepared:	12/18/18 15:29
		Analyzed:	12/19/18 20:28
Solids:	81.84	Preparation:	3546_PCB
		Dilution:	1
Batch:	B8L0588	Sequence:	S8L0293
		Calibration:	EJ80066
		Instrument:	A

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
12674-11-2	Aroclor 1016 [2C]		0.0284	0.0913	0.122	U
11104-28-2	Aroclor 1221 [2C]		0.0804	0.183	0.304	U
11141-16-5	Aroclor 1232 [2C]		0.0245	0.0609	0.122	U
53469-21-9	Aroclor 1242 [2C]		0.0230	0.0609	0.122	U
12672-29-6	Aroclor 1248 [2C]		0.0253	0.0609	0.122	U
11097-69-1	Aroclor 1254 [2C]		0.0256	0.0609	0.122	U
11096-82-5	Aroclor 1260 [2C]		0.0314	0.0913	0.122	U
1336-36-3	Total PCB [2C]		0.0804	0.183	0.304	U

Italicized = secondary result

*MWH-19*

# 1 - FORM I

## ANALYSIS DATA SHEET

18111134

Laboratory:	Environmental Monitoring and Technologies, Inc	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0510-10
		File ID:	U18L20015C
Sampled:	12/12/18 15:00	Prepared:	12/18/18 15:30
		Analyzed:	12/20/18 21:41
Solids:	83.19	Preparation:	3546_P
		Dilution:	5
Batch:	B8L0589	Sequence:	S8L0325
		Calibration:	EL80034
		Instrument:	U

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
72-54-8	4,4'-DDD		1.59	6.01	12.0	U
72-54-8	4,4'-DDD [2C]		1.59	6.01	12.0	U
72-55-9	4,4'-DDE		1.20	3.01	12.0	U
72-55-9	4,4'-DDE [2C]		1.20	3.01	12.0	U
50-29-3	4,4'-DDT		1.17	3.01	12.0	U
50-29-3	4,4'-DDT [2C]		1.17	3.01	12.0	U
309-00-2	Aldrin		1.02	3.01	12.0	U
309-00-2	Aldrin [2C]		1.02	3.01	12.0	U
319-84-6	alpha-BHC		1.14	3.01	12.0	U
319-84-6	alpha-BHC [2C]		1.14	3.01	12.0	U
5103-71-9	alpha-Chlordane		1.74	6.01	12.0	U
5103-71-9	alpha-Chlordane [2C]		1.74	6.01	12.0	U
319-85-7	beta-BHC		2.98	6.01	24.1	U
319-85-7	beta-BHC [2C]		2.98	6.01	24.1	U
319-86-8	delta-BHC		4.57	6.01	24.1	U
319-86-8	delta-BHC [2C]		4.57	6.01	24.1	U
60-57-1	Dieldrin		1.17	3.01	12.0	U
60-57-1	Dieldrin [2C]		1.17	3.01	12.0	U
959-98-8	Endosulfan I		1.08	3.01	12.0	U
959-98-8	Endosulfan I [2C]		1.08	3.01	12.0	U
33213-65-9	Endosulfan II		2.26	6.01	12.0	U
33213-65-9	Endosulfan II [2C]		2.26	6.01	12.0	U
1031-07-8	Endosulfan sulfate		4.21	12.0	24.1	U
1031-07-8	Endosulfan sulfate [2C]		4.21	12.0	24.1	U
72-20-8	Endrin		1.17	6.01	12.0	U
72-20-8	Endrin [2C]		1.17	6.01	12.0	U
7421-93-4	Endrin aldehyde		4.90	12.0	24.1	U
7421-93-4	Endrin aldehyde [2C]		4.90	12.0	24.1	U
53494-70-5	Endrin ketone		3.58	12.0	24.1	U
53494-10-5	Endrin ketone [2C]		3.58	12.0	24.1	U
58-89-9	gamma-BHC		1.32	6.01	12.0	U

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*MW 1-22-19*



# 1 - FORM I

## ANALYSIS DATA SHEET

18111134

Laboratory:	Environmental Monitoring and Technologies, Inc	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0510-10
		File ID:	U18L20015C
Sampled:	12/12/18 15:00	Prepared:	12/18/18 15:30
		Analyzed:	12/20/18 21:41
Solids:	83.19	Preparation:	3546_P
		Dilution:	5
Batch:	B8L0589	Sequence:	S8L0325
		Calibration:	EL80034
		Instrument:	U

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
58-89-9	gamma-BHC [2C]		1.32	6.01	12.0	U
5566-34-7	<i>gamma-Chlordane</i>		1.41	6.01	12.0	U
5566-34-7	gamma-Chlordane [2C]		1.41	6.01	12.0	U
76-44-8	<i>Heptachlor</i>		1.29	6.01	12.0	U
76-44-8	Heptachlor [2C]		1.29	6.01	12.0	U
1024-57-3	<i>Heptachlor epoxide</i>		1.29	6.01	12.0	U
1024-57-3	Heptachlor epoxide [2C]		1.29	6.01	12.0	U
72-43-5	<i>Methoxychlor</i>		1.59	6.01	12.0	U
72-43-5	Methoxychlor [2C]		1.59	6.01	12.0	U
8001-35-2	<i>Toxaphene</i>		263	601	1500	U
8001-35-2	Toxaphene [2C]		263	601	1500	U

Italicized = secondary result

*MW 122-19*

# 1 - FORM I

## ANALYSIS DATA SHEET

18111134

Laboratory:	Environmental Monitoring and Technologies, Inc	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0510-10
Sampled:	12/12/18 15:00	Prepared:	12/18/18 15:29
Solids:	83.19	Preparation:	3546_PCB
Batch:	B8L0588	Sequence:	S8L0293
		Calibration:	EJ80066
		Dilution:	1
		Instrument:	A

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
12674-11-2	Aroclor 1016 [2C]		0.0281	0.0902	0.120	U
11104-28-2	Aroclor 1221 [2C]		0.0795	0.180	0.301	U
11141-16-5	Aroclor 1232 [2C]		0.0242	0.0601	0.120	U
53469-21-9	Aroclor 1242 [2C]		0.0227	0.0601	0.120	U
12672-29-6	Aroclor 1248 [2C]		0.0250	0.0601	0.120	U
11097-69-1	Aroclor 1254 [2C]		0.0253	0.0601	0.120	U
11096-82-5	Aroclor 1260 [2C]		0.0310	0.0902	0.120	U
1336-36-3	Total PCB [2C]		0.0795	0.180	0.301	U

Italicized = secondary result

*AWH-19*

# 1 - FORM I ANALYSIS DATA SHEET

18111401

Laboratory:	Environmental Monitoring and Technologies, Inc	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Water	Laboratory ID:	18L0444-01
		File ID:	U18L17013
Sampled:	12/11/18 08:58	Prepared:	12/14/18 11:00
		Analyzed:	12/17/18 13:43
Solids:		Preparation:	3510_P
		Dilution:	1
Batch:	B8L0480	Sequence:	S8L0252
		Calibration:	EL80034
		Instrument:	U

CAS NO.	COMPOUND	CONC. (ug/L)	MDL	LOD	RL	Q
72-54-8	4,4'-DDD		0.00263	0.0114	0.0228	U
72-55-9	4,4'-DDE		0.00400	0.0114	0.0228	U
50-29-3	4,4'-DDT		0.00400	0.0114	0.0228	U
309-00-2	Aldrin		0.00594	0.0228	0.0457	U
319-84-6	alpha-BHC		0.00194	0.00571	0.114	U
5103-71-9	alpha-Chlordane		0.00480	0.0114	0.0228	U
319-85-7	beta-BHC		0.00228	0.0114	0.0228	U
319-86-8	delta-BHC		0.00286	0.0114	0.0228	U
60-57-1	Dieldrin		0.00228	0.0114	0.0228	U
959-98-8	Endosulfan I		0.00217	0.0114	0.0228	U
33213-65-9	Endosulfan II		0.00274	0.0114	0.0228	U
1031-07-8	Endosulfan sulfate		0.00251	0.0114	0.0228	U
72-20-8	Endrin		0.00251	0.0114	0.0228	U
7421-93-4	Endrin aldehyde		0.00148	0.0114	0.0228	U
53494-70-5	Endrin ketone		0.00286	0.0114	0.0228	U
58-89-9	gamma-BHC		0.00217	0.0114	0.0228	U
5566-34-7	gamma-Chlordane		0.00377	0.0114	0.0228	U
76-44-8	Heptachlor		0.00582	0.0228	0.0457	U
1024-57-3	Heptachlor epoxide		0.00206	0.0114	0.0228	U
72-43-5	Methoxychlor		0.0114	0.0228	0.0457	U
8001-35-2	Toxaphene		0.343	0.914	2.28	U

Italicized = secondary result

*mw 1-22-18*

**1 - FORM I**  
**ANALYSIS DATA SHEET**

18111401

Laboratory:	Environmental Monitoring and Technologies, Inc			SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.			Project:	1004530.0470.001.01
Matrix:	Water	Laboratory ID:	18L0444-01	File ID:	A18L17008
Sampled:	12/11/18 08:58	Prepared:	12/14/18 11:14	Analyzed:	12/17/18 15:05
Solids:		Preparation:	3510_PCB	Dilution:	1
Batch:	B8L0481	Sequence:	S8L0236	Calibration:	EJ80066
				Instrument:	A

CAS NO.	COMPOUND	CONC. (ug/L)	MDL	LOD	RL	Q
12674-11-2	Aroclor 1016		0.0913	0.343	0.457	U
11104-28-2	Aroclor 1221		0.219	0.571	0.685	U
11141-16-5	Aroclor 1232		0.185	0.571	0.685	U
53469-21-9	Aroclor 1242		0.179	0.571	0.685	U
12672-29-6	Aroclor 1248		0.183	0.571	0.685	U
11097-69-1	Aroclor 1254		0.201	0.571	0.685	U
11096-82-5	Aroclor 1260		0.128	0.343	0.457	U
1336-36-3	Total PCB		0.219	0.571	0.685	U

Italicized = secondary result

*Mw Hota*

# 1 - FORM I

## ANALYSIS DATA SHEET

18111402

Laboratory:	Environmental Monitoring and Technologies, Inc	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Water	Laboratory ID:	18L0444-02
		File ID:	U18L17014
Sampled:	12/11/18 10:00	Prepared:	12/14/18 11:00
		Analyzed:	12/17/18 13:59
Solids:		Preparation:	3510_P
		Dilution:	1
Batch:	B8L0480	Sequence:	S8L0252
		Calibration:	EL80034
		Instrument:	U

CAS NO.	COMPOUND	CONC. (ug/L)	MDL	LOD	RL	Q
72-54-8	4,4'-DDD		0.00236	0.0103	0.0205	U
72-55-9	4,4'-DDE		0.00359	0.0103	0.0205	U
50-29-3	4,4'-DDT		0.00359	0.0103	0.0205	U
309-00-2	Aldrin		0.00533	0.0205	0.0410	U
319-84-6	alpha-BHC		0.00174	0.00513	0.103	U
5103-71-9	alpha-Chlordane		0.00431	0.0103	0.0205	U
319-85-7	beta-BHC		0.00205	0.0103	0.0205	U
319-86-8	delta-BHC		0.00256	0.0103	0.0205	U
60-57-1	Dieldrin		0.00205	0.0103	0.0205	U
959-98-8	Endosulfan I		0.00195	0.0103	0.0205	U
33213-65-9	Endosulfan II		0.00246	0.0103	0.0205	U
1031-07-8	Endosulfan sulfate		0.00226	0.0103	0.0205	U
72-20-8	Endrin		0.00226	0.0103	0.0205	U
7421-93-4	Endrin aldehyde		0.00133	0.0103	0.0205	U
53494-70-5	Endrin ketone		0.00256	0.0103	0.0205	U
58-89-9	gamma-BHC		0.00195	0.0103	0.0205	U
5566-34-7	gamma-Chlordane		0.00338	0.0103	0.0205	U
76-44-8	Heptachlor		0.00523	0.0205	0.0410	U
1024-57-3	Heptachlor epoxide		0.00185	0.0103	0.0205	U
72-43-5	Methoxychlor		0.0103	0.0205	0.0410	U
8001-35-2	Toxaphene		0.308	0.820	2.05	U

Italicized = secondary result

*Handwritten signature/initials*

# 1 - FORM I

## ANALYSIS DATA SHEET

18111402

Laboratory:	Environmental Monitoring and Technologies, Inc	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Water	Laboratory ID:	18L0444-02
		File ID:	A18L17009
Sampled:	12/11/18 10:00	Prepared:	12/14/18 11:14
		Analyzed:	12/17/18 15:32
Solids:		Preparation:	3510_PCB
		Dilution:	1
Batch:	B8L0481	Sequence:	S8L0236
		Calibration:	EJ80066
		Instrument:	A

CAS NO.	COMPOUND	CONC. (ug/L)	MDL	LOD	RL	Q
12674-11-2	Aroclor 1016		0.0819	0.308	0.410	U
11104-28-2	Aroclor 1221		0.196	0.513	0.615	U
11141-16-5	Aroclor 1232		0.166	0.513	0.615	U
53469-21-9	Aroclor 1242		0.161	0.513	0.615	U
12672-29-6	Aroclor 1248		0.164	0.513	0.615	U
11097-69-1	Aroclor 1254		0.180	0.513	0.615	U
11096-82-5	Aroclor 1260		0.115	0.308	0.410	U
1336-36-3	Total PCB		0.196	0.513	0.615	U

Italicized = secondary result

*MM/Hofq*

# 1 - FORM I

## ANALYSIS DATA SHEET

18111403

Laboratory:	Environmental Monitoring and Technologies, Inc	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Water	Laboratory ID:	18L0446-02
		File ID:	U18L17016
Sampled:	12/11/18 10:21	Prepared:	12/14/18 11:00
		Analyzed:	12/17/18 14:33
Solids:		Preparation:	3510_P
		Dilution:	1
Batch:	B8L0480	Sequence:	S8L0252
		Calibration:	EL80034
		Instrument:	U

CAS NO.	COMPOUND	CONC. (ug/L)	MDL	LOD	RL	Q
72-54-8	4,4'-DDD		0.00240	0.0104	0.0208	U
72-55-9	4,4'-DDE		0.00365	0.0104	0.0208	U
50-29-3	4,4'-DDT		0.00365	0.0104	0.0208	U
309-00-2	Aldrin		0.00542	0.0208	0.0417	U
319-84-6	alpha-BHC		0.00177	0.00521	0.104	U
5103-71-9	alpha-Chlordane		0.00438	0.0104	0.0208	U
319-85-7	beta-BHC		0.00208	0.0104	0.0208	U
319-86-8	delta-BHC		0.00261	0.0104	0.0208	U
60-57-1	Dieldrin		0.00208	0.0104	0.0208	U
959-98-8	Endosulfan I		0.00198	0.0104	0.0208	U
33213-65-9	Endosulfan II		0.00250	0.0104	0.0208	U
1031-07-8	Endosulfan sulfate		0.00229	0.0104	0.0208	U
72-20-8	Endrin		0.00229	0.0104	0.0208	U
7421-93-4	Endrin aldehyde		0.00135	0.0104	0.0208	U
53494-70-5	Endrin ketone		0.00261	0.0104	0.0208	U
58-89-9	gamma-BHC		0.00198	0.0104	0.0208	U
5566-34-7	gamma-Chlordane		0.00344	0.0104	0.0208	U
76-44-8	Heptachlor		0.00532	0.0208	0.0417	U
1024-57-3	Heptachlor epoxide		0.00188	0.0104	0.0208	U
72-43-5	Methoxychlor		0.0104	0.0208	0.0417	U
8001-35-2	Toxaphene		0.313	0.834	2.08	U

Italicized = secondary result



**1 - FORM I**  
**ANALYSIS DATA SHEET**

18111403

Laboratory:	Environmental Monitoring and Technologies, Inc			SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.			Project:	1004530.0470.001.01
Matrix:	Water	Laboratory ID:	18L0446-02	File ID:	A18L17004R
Sampled:	12/11/18 10:21	Prepared:	12/14/18 11:14	Analyzed:	12/17/18 13:18
Solids:		Preparation:	3510_PCB	Dilution:	1
Batch:	B8L0481	Sequence:	S8L0236	Calibration:	EJ80066
				Instrument:	A

CAS NO.	COMPOUND	CONC. (ug/L)	MDL	LOD	RL	Q
12674-11-2	Aroclor 1016 [2C]		0.0833	0.313	0.417	U
11104-28-2	Aroclor 1221 [2C]		0.200	0.521	0.625	U
11141-16-5	Aroclor 1232 [2C]		0.169	0.521	0.625	U
53469-21-9	Aroclor 1242 [2C]		0.163	0.521	0.625	U
12672-29-6	Aroclor 1248 [2C]		0.167	0.521	0.625	U
11097-69-1	Aroclor 1254 [2C]		0.183	0.521	0.625	U
11096-82-5	Aroclor 1260 [2C]		0.117	0.313	0.417	U
1336-36-3	Total PCB [2C]		0.200	0.521	0.625	U

Italicized = secondary result

*M. H. 19*



# 1 - FORM I

## ANALYSIS DATA SHEET

18111404

Laboratory:	Environmental Monitoring and Technologies, Inc	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Water	Laboratory ID:	18L0446-01
		File ID:	U18L17015
Sampled:	12/11/18 11:27	Prepared:	12/14/18 11:00
		Analyzed:	12/17/18 14:16
Solids:		Preparation:	3510_P
		Dilution:	1
Batch:	B8L0480	Sequence:	S8L0252
		Calibration:	EL80034
		Instrument:	U

CAS NO.	COMPOUND	CONC. (ug/L)	MDL	LOD	RL	Q
72-54-8	4,4'-DDD		0.00245	0.0107	0.0213	U
72-55-9	4,4'-DDE		0.00373	0.0107	0.0213	U
50-29-3	4,4'-DDT		0.00373	0.0107	0.0213	U
309-00-2	Aldrin		0.00554	0.0213	0.0426	U
319-84-6	alpha-BHC		0.00181	0.00533	0.107	U
5103-71-9	alpha-Chlordane		0.00448	0.0107	0.0213	U
319-85-7	beta-BHC		0.00213	0.0107	0.0213	U
319-86-8	delta-BHC		0.00266	0.0107	0.0213	U
60-57-1	Dieldrin		0.00213	0.0107	0.0213	U
959-98-8	Endosulfan I		0.00202	0.0107	0.0213	U
33213-65-9	Endosulfan II		0.00256	0.0107	0.0213	U
1031-07-8	Endosulfan sulfate		0.00234	0.0107	0.0213	U
72-20-8	Endrin		0.00234	0.0107	0.0213	U
7421-93-4	Endrin aldehyde		0.00139	0.0107	0.0213	U
53494-70-5	Endrin ketone		0.00266	0.0107	0.0213	U
58-89-9	gamma-BHC		0.00202	0.0107	0.0213	U
5566-34-7	gamma-Chlordane		0.00352	0.0107	0.0213	U
76-44-8	Heptachlor		0.00543	0.0213	0.0426	U
1024-57-3	Heptachlor epoxide		0.00192	0.0107	0.0213	U
72-43-5	Methoxychlor		0.0107	0.0213	0.0426	U
8001-35-2	Toxaphene		0.320	0.853	2.13	U

Italicized = secondary result

*Handwritten signature and date: 1-22-19*

**1 - FORM I**  
**ANALYSIS DATA SHEET**

18111404

Laboratory:	Environmental Monitoring and Technologies, Inc			SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.			Project:	1004530.0470.001.01
Matrix:	Water	Laboratory ID:	18L0446-01	File ID:	A18L17003R
Sampled:	12/11/18 11:27	Prepared:	12/14/18 11:14	Analyzed:	12/17/18 12:52
Solids:		Preparation:	3510_PCB	Dilution:	1
Batch:	B8L0481	Sequence:	S8L0236	Calibration:	EJ80066
				Instrument:	A

CAS NO.	COMPOUND	CONC. (ug/L)	MDL	LOD	RL	Q
12674-11-2	Aroclor 1016 [2C]		0.0851	0.320	0.426	U
11104-28-2	Aroclor 1221 [2C]		0.204	0.533	0.639	U
11141-16-5	Aroclor 1232 [2C]		0.173	0.533	0.639	U
53469-21-9	Aroclor 1242 [2C]		0.167	0.533	0.639	U
12672-29-6	Aroclor 1248 [2C]		0.170	0.533	0.639	U
11097-69-1	Aroclor 1254 [2C]		0.187	0.533	0.639	U
11096-82-5	Aroclor 1260 [2C]		0.120	0.320	0.426	U
1336-36-3	Total PCB [2C]		0.204	0.533	0.639	U

Italicized = secondary result

*M. H. H. H.*

# 1 - FORM I

## ANALYSIS DATA SHEET

18111405

Laboratory:	Environmental Monitoring and Technologies, Inc	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Water	Laboratory ID:	18L0447-01
		File ID:	U18L17017
Sampled:	12/11/18 10:51	Prepared:	12/14/18 11:00
		Analyzed:	12/17/18 14:49
Solids:		Preparation:	3510_P
		Dilution:	1
Batch:	B8L0480	Sequence:	S8L0252
		Calibration:	EL80034
		Instrument:	U

CAS NO.	COMPOUND	CONC. (ug/L)	MDL	LOD	RL	Q
72-54-8	4,4'-DDD		0.00239	0.0104	0.0208	U
72-55-9	4,4'-DDE		0.00364	0.0104	0.0208	U
50-29-3	4,4'-DDT		0.00364	0.0104	0.0208	U
309-00-2	Aldrin		0.00541	0.0208	0.0416	U
319-84-6	alpha-BHC		0.00177	0.00520	0.104	U
5103-71-9	alpha-Chlordane		0.00437	0.0104	0.0208	U
319-85-7	beta-BHC		0.00208	0.0104	0.0208	U
319-86-8	delta-BHC		0.00260	0.0104	0.0208	U
60-57-1	Dieldrin		0.00208	0.0104	0.0208	U
959-98-8	Endosulfan I		0.00198	0.0104	0.0208	U
33213-65-9	Endosulfan II		0.00250	0.0104	0.0208	U
1031-07-8	Endosulfan sulfate		0.00229	0.0104	0.0208	U
72-20-8	Endrin		0.00229	0.0104	0.0208	U
7421-93-4	Endrin aldehyde		0.00135	0.0104	0.0208	U
53494-70-5	Endrin ketone		0.00260	0.0104	0.0208	U
58-89-9	gamma-BHC		0.00198	0.0104	0.0208	U
5566-34-7	gamma-Chlordane		0.00343	0.0104	0.0208	U
76-44-8	Heptachlor		0.00531	0.0208	0.0416	U
1024-57-3	Heptachlor epoxide		0.00187	0.0104	0.0208	U
72-43-5	Methoxychlor		0.0104	0.0208	0.0416	U
8001-35-2	Toxaphene		0.312	0.833	2.08	U

Italicized = secondary result

*mw 12240*

**1 - FORM I**  
**ANALYSIS DATA SHEET**

18111405

Laboratory:	Environmental Monitoring and Technologies, Inc			SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.			Project:	1004530.0470.001.01
Matrix:	Water	Laboratory ID:	18L0447-01	File ID:	A18L17005R
Sampled:	12/11/18 10:51	Prepared:	12/14/18 11:14	Analyzed:	12/17/18 13:45
Solids:		Preparation:	3510_PCB	Dilution:	1
Batch:	B8L0481	Sequence:	S8L0236	Calibration:	EJ80066
				Instrument:	A

CAS NO.	COMPOUND	CONC. (ug/L)	MDL	LOD	RL	Q
12674-11-2	Aroclor 1016 [2C]		0.0832	0.312	0.416	U
11104-28-2	Aroclor 1221 [2C]		0.199	0.520	0.624	U
11141-16-5	Aroclor 1232 [2C]		0.169	0.520	0.624	U
53469-21-9	Aroclor 1242 [2C]		0.163	0.520	0.624	U
12672-29-6	Aroclor 1248 [2C]		0.166	0.520	0.624	U
11097-69-1	Aroclor 1254 [2C]		0.183	0.520	0.624	U
11096-82-5	Aroclor 1260 [2C]		0.117	0.312	0.416	U
1336-36-3	Total PCB [2C]		0.199	0.520	0.624	U

Italicized = secondary result

*MW Holf*

# 1 - FORM I

## ANALYSIS DATA SHEET

18111406

Laboratory:	Environmental Monitoring and Technologies, Inc	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Water	Laboratory ID:	18L0447-02
		File ID:	U18L17018
Sampled:	12/11/18 11:00	Prepared:	12/14/18 11:00
		Analyzed:	12/17/18 15:06
Solids:		Preparation:	3510_P
		Dilution:	1
Batch:	B8L0480	Sequence:	S8L0252
		Calibration:	EL80034
		Instrument:	U

CAS NO.	COMPOUND	CONC. (ug/L)	MDL	LOD	RL	Q
72-54-8	4,4'-DDD		0.00240	0.0104	0.0209	U
72-55-9	4,4'-DDE		0.00366	0.0104	0.0209	U
50-29-3	4,4'-DDT		0.00366	0.0104	0.0209	U
309-00-2	Aldrin		0.00543	0.0209	0.0418	U
319-84-6	alpha-BHC		0.00178	0.00522	0.104	U
5103-71-9	alpha-Chlordane		0.00439	0.0104	0.0209	U
319-85-7	beta-BHC		0.00209	0.0104	0.0209	U
319-86-8	delta-BHC		0.00261	0.0104	0.0209	U
60-57-1	Dieldrin		0.00209	0.0104	0.0209	U
959-98-8	Endosulfan I		0.00198	0.0104	0.0209	U
33213-65-9	Endosulfan II		0.00251	0.0104	0.0209	U
1031-07-8	Endosulfan sulfate		0.00230	0.0104	0.0209	U
72-20-8	Endrin		0.00230	0.0104	0.0209	U
7421-93-4	Endrin aldehyde		0.00136	0.0104	0.0209	U
53494-70-5	Endrin ketone		0.00261	0.0104	0.0209	U
58-89-9	gamma-BHC		0.00198	0.0104	0.0209	U
5566-34-7	gamma-Chlordane		0.00345	0.0104	0.0209	U
76-44-8	Heptachlor		0.00533	0.0209	0.0418	U
1024-57-3	Heptachlor epoxide		0.00188	0.0104	0.0209	U
72-43-5	Methoxychlor		0.0104	0.0209	0.0418	U
8001-35-2	Toxaphene		0.313	0.836	2.09	U

Italicized = secondary result

*MW 12-19*

**1 - FORM I**  
**ANALYSIS DATA SHEET**

18111406

Laboratory:	Environmental Monitoring and Technologies, Inc			SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.			Project:	1004530.0470.001.01
Matrix:	Water	Laboratory ID:	18L0447-02	File ID:	A18L17006R
Sampled:	12/11/18 11:00	Prepared:	12/14/18 11:14	Analyzed:	12/17/18 14:12
Solids:		Preparation:	3510_PCB	Dilution:	1
Batch:	B8L0481	Sequence:	S8L0236	Calibration:	EJ80066
				Instrument:	A

CAS NO.	COMPOUND	CONC. (ug/L)	MDL	LOD	RL	Q
12674-11-2	Aroclor 1016 [2C]		0.0835	0.313	0.418	U
11104-28-2	Aroclor 1221 [2C]		0.200	0.522	0.627	U
11141-16-5	Aroclor 1232 [2C]		0.169	0.522	0.627	U
53469-21-9	Aroclor 1242 [2C]		0.164	0.522	0.627	U
12672-29-6	Aroclor 1248 [2C]		0.167	0.522	0.627	U
11097-69-1	Aroclor 1254 [2C]		0.184	0.522	0.627	U
11096-82-5	Aroclor 1260 [2C]		0.117	0.313	0.418	U
1336-36-3	Total PCB [2C]		0.200	0.522	0.627	U

Italicized = secondary result

*MW Hota*

# 1 - FORM I

## ANALYSIS DATA SHEET

18111408

Laboratory:	Environmental Monitoring and Technologies, Inc	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Water	Laboratory ID:	18L0489-01
		File ID:	U18L17012
Sampled:	12/11/18 14:37	Prepared:	12/14/18 11:00
		Analyzed:	12/17/18 13:26
Solids:		Preparation:	3510_P
		Dilution:	1
Batch:	B8L0480	Sequence:	S8L0252
		Calibration:	EL80034
		Instrument:	U

CAS NO.	COMPOUND	CONC. (ug/L)	MDL	LOD	RL	Q
72-54-8	4,4'-DDD		0.00234	0.0102	0.0204	U
72-55-9	4,4'-DDE		0.00357	0.0102	0.0204	U
50-29-3	4,4'-DDT		0.00357	0.0102	0.0204	U
309-00-2	Aldrin		0.00530	0.0204	0.0408	U
319-84-6	alpha-BHC		0.00173	0.00510	0.102	U
5103-71-9	alpha-Chlordane		0.00428	0.0102	0.0204	U
319-85-7	beta-BHC		0.00204	0.0102	0.0204	U
319-86-8	delta-BHC		0.00255	0.0102	0.0204	U
60-57-1	Dieldrin		0.00204	0.0102	0.0204	U
959-98-8	Endosulfan I		0.00194	0.0102	0.0204	U
33213-65-9	Endosulfan II		0.00245	0.0102	0.0204	U
1031-07-8	Endosulfan sulfate		0.00224	0.0102	0.0204	U
72-20-8	Endrin		0.00224	0.0102	0.0204	U
7421-93-4	Endrin aldehyde		0.00133	0.0102	0.0204	U
53494-70-5	Endrin ketone		0.00255	0.0102	0.0204	U
58-89-9	gamma-BHC		0.00194	0.0102	0.0204	U
5566-34-7	gamma-Chlordane		0.00336	0.0102	0.0204	U
76-44-8	Heptachlor		0.00520	0.0204	0.0408	U
1024-57-3	Heptachlor epoxide		0.00183	0.0102	0.0204	U
72-43-5	Methoxychlor		0.0102	0.0204	0.0408	U
8001-35-2	Toxaphene		0.306	0.815	2.04	U

Italicized = secondary result

**1 - FORM I**  
**ANALYSIS DATA SHEET**

18111408

Laboratory:	Environmental Monitoring and Technologies, Inc	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Water	Laboratory ID:	18L0489-01
		File ID:	A18L17010
Sampled:	12/11/18 14:37	Prepared:	12/14/18 11:14
		Analyzed:	12/17/18 15:58
Solids:		Preparation:	3510_PCB
		Dilution:	1
Batch:	B8L0481	Sequence:	S8L0236
		Calibration:	EJ80066
		Instrument:	A

CAS NO.	COMPOUND	CONC. (ug/L)	MDL	LOD	RL	Q
12674-11-2	Aroclor 1016		0.0814	0.306	0.408	U
11104-28-2	Aroclor 1221		0.195	0.510	0.612	U
11141-16-5	Aroclor 1232		0.165	0.510	0.612	U
53469-21-9	Aroclor 1242		0.160	0.510	0.612	U
12672-29-6	Aroclor 1248		0.163	0.510	0.612	U
11097-69-1	Aroclor 1254		0.179	0.510	0.612	U
11096-82-5	Aroclor 1260		0.114	0.306	0.408	U
1336-36-3	Total PCB		0.195	0.510	0.612	U

Italicized = secondary result

*MW 10/19*



# 1 - FORM I

## ANALYSIS DATA SHEET

18111409

Laboratory:	Environmental Monitoring and Technologies, Inc	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Water	Laboratory ID:	18L0491-01
		File ID:	U18L17019
Sampled:	12/11/18 00:00	Prepared:	12/14/18 11:00
		Analyzed:	12/17/18 15:22
Solids:		Preparation:	3510_P
		Dilution:	1
Batch:	B8L0480	Sequence:	S8L0252
		Calibration:	EL80034
		Instrument:	U

CAS NO.	COMPOUND	CONC. (ug/L)	MDL	LOD	RL	Q
72-54-8	4,4'-DDD		0.00218	0.00949	0.0190	U
72-55-9	4,4'-DDE		0.00332	0.00949	0.0190	U
50-29-3	4,4'-DDT		0.00332	0.00949	0.0190	U
309-00-2	Aldrin		0.00493	0.0190	0.0380	U
319-84-6	alpha-BHC		0.00161	0.00475	0.0949	U
5103-71-9	alpha-Chlordane		0.00399	0.00949	0.0190	U
319-85-7	beta-BHC		0.00190	0.00949	0.0190	U
319-86-8	delta-BHC		0.00237	0.00949	0.0190	U
60-57-1	Dieldrin		0.00190	0.00949	0.0190	U
959-98-8	Endosulfan I		0.00180	0.00949	0.0190	U
33213-65-9	Endosulfan II		0.00228	0.00949	0.0190	U
1031-07-8	Endosulfan sulfate		0.00209	0.00949	0.0190	U
72-20-8	Endrin		0.00209	0.00949	0.0190	U
7421-93-4	Endrin aldehyde		0.00123	0.00949	0.0190	U
53494-70-5	Endrin ketone		0.00237	0.00949	0.0190	U
58-89-9	gamma-BHC		0.00180	0.00949	0.0190	U
5566-34-7	gamma-Chlordane		0.00313	0.00949	0.0190	U
76-44-8	Heptachlor		0.00484	0.0190	0.0380	U
1024-57-3	Heptachlor epoxide		0.00171	0.00949	0.0190	U
72-43-5	Methoxychlor		0.00949	0.0190	0.0380	U
8001-35-2	Toxaphene		0.285	0.759	1.90	U

Italicized = secondary result

*Mw 12249*

**1 - FORM I**  
**ANALYSIS DATA SHEET**

18111409

Laboratory:	Environmental Monitoring and Technologies, Inc			SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.			Project:	1004530.0470.001.01
Matrix:	Water	Laboratory ID:	18L0491-01	File ID:	A18L17007R
Sampled:	12/11/18 00:00	Prepared:	12/14/18 11:14	Analyzed:	12/17/18 14:38
Solids:		Preparation:	3510_PCB	Dilution:	1
Batch:	B8L0481	Sequence:	S8L0236	Calibration:	EJ80066
				Instrument:	A

CAS NO.	COMPOUND	CONC. (ug/L)	MDL	LOD	RL	Q
12674-11-2	Aroclor 1016 [2C]		0.0758	0.285	0.380	U
11104-28-2	Aroclor 1221 [2C]		0.182	0.475	0.569	U
11141-16-5	Aroclor 1232 [2C]		0.154	0.475	0.569	U
53469-21-9	Aroclor 1242 [2C]		0.149	0.475	0.569	U
12672-29-6	Aroclor 1248 [2C]		0.152	0.475	0.569	U
11097-69-1	Aroclor 1254 [2C]		0.167	0.475	0.569	U
11096-82-5	Aroclor 1260 [2C]		0.106	0.285	0.380	U
1336-36-3	Total PCB [2C]		0.182	0.475	0.569	U

Italicized = secondary result

*Mw/Holtz*

# 1 - FORM I

## ANALYSIS DATA SHEET

18111410

Laboratory:	Environmental Monitoring and Technologies, Inc	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Water	Laboratory ID:	18L0491-02
		File ID:	U18L17021
Sampled:	12/11/18 00:00	Prepared:	12/14/18 11:00
		Analyzed:	12/17/18 15:56
Solids:		Preparation:	3510_P
		Dilution:	1
Batch:	B8L0480	Sequence:	S8L0252
		Calibration:	EL80034
		Instrument:	U

CAS NO.	COMPOUND	CONC. (ug/L)	MDL	LOD	RL	Q
72-54-8	4,4'-DDD		0.00225	0.00980	0.0196	U
72-55-9	4,4'-DDE		0.00343	0.00980	0.0196	U
50-29-3	4,4'-DDT		0.00343	0.00980	0.0196	U
309-00-2	Aldrin		0.00510	0.0196	0.0392	U
319-84-6	alpha-BHC		0.00167	0.00490	0.0980	U
5103-71-9	alpha-Chlordane		0.00412	0.00980	0.0196	U
319-85-7	beta-BHC		0.00196	0.00980	0.0196	U
319-86-8	delta-BHC		0.00245	0.00980	0.0196	U
60-57-1	Dieldrin		0.00196	0.00980	0.0196	U
959-98-8	Endosulfan I		0.00186	0.00980	0.0196	U
33213-65-9	Endosulfan II		0.00235	0.00980	0.0196	U
1031-07-8	Endosulfan sulfate		0.00216	0.00980	0.0196	U
72-20-8	Endrin		0.00216	0.00980	0.0196	U
7421-93-4	Endrin aldehyde		0.00127	0.00980	0.0196	U
53494-70-5	Endrin ketone		0.00245	0.00980	0.0196	U
58-89-9	gamma-BHC		0.00186	0.00980	0.0196	U
5566-34-7	gamma-Chlordane		0.00323	0.00980	0.0196	U
76-44-8	Heptachlor		0.00500	0.0196	0.0392	U
1024-57-3	Heptachlor epoxide		0.00176	0.00980	0.0196	U
72-43-5	Methoxychlor		0.00980	0.0196	0.0392	U
8001-35-2	Toxaphene		0.294	0.784	1.96	U

Italicized = secondary result

*MW-22-19*

**1 - FORM I**  
**ANALYSIS DATA SHEET**

18111410

Laboratory:	Environmental Monitoring and Technologies, Inc			SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.			Project:	1004530.0470.001.01
Matrix:	Water	Laboratory ID:	18L0491-02	File ID:	A18L17008R
Sampled:	12/11/18 00:00	Prepared:	12/14/18 11:14	Analyzed:	12/17/18 15:05
Solids:		Preparation:	3510_PCB	Dilution:	1
Batch:	B8L0481	Sequence:	S8L0236	Calibration:	EJ80066
				Instrument:	A

CAS NO.	COMPOUND	CONC. (ug/L)	MDL	LOD	RL	Q
12674-11-2	Aroclor 1016 [2C]		0.0783	0.294	0.392	U
11104-28-2	Aroclor 1221 [2C]		0.188	0.490	0.588	U
11141-16-5	Aroclor 1232 [2C]		0.159	0.490	0.588	U
53469-21-9	Aroclor 1242 [2C]		0.154	0.490	0.588	U
12672-29-6	Aroclor 1248 [2C]		0.157	0.490	0.588	U
11097-69-1	Aroclor 1254 [2C]		0.172	0.490	0.588	U
11096-82-5	Aroclor 1260 [2C]		0.110	0.294	0.392	U
1336-36-3	Total PCB [2C]		0.188	0.490	0.588	U

Italicized = secondary result

*Mw/fola*

# 1 - FORM I

## ANALYSIS DATA SHEET

18111411

Laboratory:	Environmental Monitoring and Technologies, Inc	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Water	Laboratory ID:	18L0495-02
		File ID:	U18L17024
Sampled:	12/11/18 00:00	Prepared:	12/14/18 11:00
		Analyzed:	12/17/18 16:46
Solids:		Preparation:	3510_P
		Dilution:	1
Batch:	B8L0480	Sequence:	S8L0252
		Calibration:	EL80034
		Instrument:	U

CAS NO.	COMPOUND	CONC. (ug/L)	MDL	LOD	RL	Q
72-54-8	4,4'-DDD		0.00218	0.00950	0.0190	U
72-55-9	4,4'-DDE		0.00332	0.00950	0.0190	U
50-29-3	4,4'-DDT		0.00332	0.00950	0.0190	U
309-00-2	Aldrin		0.00494	0.0190	0.0380	U
319-84-6	alpha-BHC		0.00161	0.00475	0.0950	U
5103-71-9	alpha-Chlordane		0.00399	0.00950	0.0190	U
319-85-7	beta-BHC		0.00190	0.00950	0.0190	U
319-86-8	delta-BHC		0.00237	0.00950	0.0190	U
60-57-1	Dieldrin		0.00190	0.00950	0.0190	U
959-98-8	Endosulfan I		0.00180	0.00950	0.0190	U
33213-65-9	Endosulfan II		0.00228	0.00950	0.0190	U
1031-07-8	Endosulfan sulfate		0.00209	0.00950	0.0190	U
72-20-8	Endrin		0.00209	0.00950	0.0190	U
7421-93-4	Endrin aldehyde		0.00123	0.00950	0.0190	U
53494-70-5	Endrin ketone		0.00237	0.00950	0.0190	U
58-89-9	gamma-BHC		0.00180	0.00950	0.0190	U
5566-34-7	gamma-Chlordane		0.00313	0.00950	0.0190	U
76-44-8	Heptachlor		0.00484	0.0190	0.0380	U
1024-57-3	Heptachlor epoxide		0.00171	0.00950	0.0190	U
72-43-5	Methoxychlor		0.00950	0.0190	0.0380	U
8001-35-2	Toxaphene		0.285	0.760	1.90	U

Italicized = secondary result

*Handwritten signature and number 1-22-19*

**1 - FORM I**  
**ANALYSIS DATA SHEET**

18111411

Laboratory:	Environmental Monitoring and Technologies, Inc			SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.			Project:	1004530.0470.001.01
Matrix:	Water	Laboratory ID:	18L0495-02	File ID:	A18L17011R
Sampled:	12/11/18 00:00	Prepared:	12/14/18 11:14	Analyzed:	12/17/18 16:25
Solids:		Preparation:	3510_PCB	Dilution:	1
Batch:	B8L0481	Sequence:	S8L0236	Calibration:	EJ80066
				Instrument:	A

CAS NO.	COMPOUND	CONC. (ug/L)	MDL	LOD	RL	Q
12674-11-2	Aroclor 1016 [2C]		0.0759	0.285	0.380	U
11104-28-2	Aroclor 1221 [2C]		0.182	0.475	0.570	U
11141-16-5	Aroclor 1232 [2C]		0.154	0.475	0.570	U
53469-21-9	Aroclor 1242 [2C]		0.149	0.475	0.570	U
12672-29-6	Aroclor 1248 [2C]		0.152	0.475	0.570	U
11097-69-1	Aroclor 1254 [2C]		0.167	0.475	0.570	U
11096-82-5	Aroclor 1260 [2C]		0.107	0.285	0.380	U
1336-36-3	Total PCB [2C]		0.182	0.475	0.570	U

Italicized = secondary result

*MW Hota*

# 1 - FORM I

## ANALYSIS DATA SHEET

18111412

Laboratory:	Environmental Monitoring and Technologies, Inc	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Water	Laboratory ID:	18L0492-01
		File ID:	U18L17022
Sampled:	12/11/18 00:00	Prepared:	12/14/18 11:00
		Analyzed:	12/17/18 16:12
Solids:		Preparation:	3510_P
		Dilution:	1
Batch:	B8L0480	Sequence:	S8L0252
		Calibration:	EL80034
		Instrument:	U

CAS NO.	COMPOUND	CONC. (ug/L)	MDL	LOD	RL	Q
72-54-8	4,4'-DDD		0.00260	0.0113	0.0226	U
72-55-9	4,4'-DDE		0.00395	0.0113	0.0226	U
50-29-3	4,4'-DDT		0.00395	0.0113	0.0226	U
309-00-2	Aldrin		0.00587	0.0226	0.0451	U
319-84-6	alpha-BHC		0.00192	0.00564	0.113	U
5103-71-9	alpha-Chlordane		0.00474	0.0113	0.0226	U
319-85-7	beta-BHC		0.00226	0.0113	0.0226	U
319-86-8	delta-BHC		0.00282	0.0113	0.0226	U
60-57-1	Dieldrin		0.00226	0.0113	0.0226	U
959-98-8	Endosulfan I		0.00214	0.0113	0.0226	U
33213-65-9	Endosulfan II		0.00271	0.0113	0.0226	U
1031-07-8	Endosulfan sulfate		0.00248	0.0113	0.0226	U
72-20-8	Endrin		0.00248	0.0113	0.0226	U
7421-93-4	Endrin aldehyde		0.00147	0.0113	0.0226	U
53494-70-5	Endrin ketone		0.00282	0.0113	0.0226	U
58-89-9	gamma-BHC		0.00214	0.0113	0.0226	U
5566-34-7	gamma-Chlordane		0.00372	0.0113	0.0226	U
76-44-8	Heptachlor		0.00576	0.0226	0.0451	U
1024-57-3	Heptachlor epoxide		0.00203	0.0113	0.0226	U
72-43-5	Methoxychlor		0.0113	0.0226	0.0451	U
8001-35-2	Toxaphene		0.339	0.903	2.26	U

Italicized = secondary result

*MW 1-22-19*

**1 - FORM I**  
**ANALYSIS DATA SHEET**

18111412

Laboratory:	Environmental Monitoring and Technologies, Inc			SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.			Project:	1004530.0470.001.01
Matrix:	Water	Laboratory ID:	18L0492-01	File ID:	A18L17009R
Sampled:	12/11/18 00:00	Prepared:	12/14/18 11:14	Analyzed:	12/17/18 15:32
Solids:		Preparation:	3510_PCB	Dilution:	1
Batch:	B8L0481	Sequence:	S8L0236	Calibration:	EJ80066
				Instrument:	A

CAS NO.	COMPOUND	CONC. (ug/L)	MDL	LOD	RL	Q
12674-11-2	Aroclor 1016 [2C]		0.0902	0.339	0.451	U
11104-28-2	Aroclor 1221 [2C]		0.216	0.564	0.677	U
11141-16-5	Aroclor 1232 [2C]		0.183	0.564	0.677	U
53469-21-9	Aroclor 1242 [2C]		0.177	0.564	0.677	U
12672-29-6	Aroclor 1248 [2C]		0.180	0.564	0.677	U
11097-69-1	Aroclor 1254 [2C]		0.198	0.564	0.677	U
11096-82-5	Aroclor 1260 [2C]		0.127	0.339	0.451	U
1336-36-3	Total PCB [2C]		0.216	0.564	0.677	U

Italicized = secondary result

*MW Hefg*



# 1 - FORM I

## ANALYSIS DATA SHEET

18111413

Laboratory:	Environmental Monitoring and Technologies, Inc	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Water	Laboratory ID:	18L0492-02
		File ID:	U18L17023
Sampled:	12/11/18 00:00	Prepared:	12/14/18 11:00
		Analyzed:	12/17/18 16:29
Solids:		Preparation:	3510_P
		Dilution:	1
Batch:	B8L0480	Sequence:	S8L0252
		Calibration:	EL80034
		Instrument:	U

CAS NO.	COMPOUND	CONC. (ug/L)	MDL	LOD	RL	Q
72-54-8	4,4'-DDD		0.00226	0.00984	0.0197	U
72-55-9	4,4'-DDE		0.00345	0.00984	0.0197	U
50-29-3	4,4'-DDT		0.00345	0.00984	0.0197	U
309-00-2	Aldrin		0.00512	0.0197	0.0394	U
319-84-6	alpha-BHC		0.00167	0.00492	0.0984	U
5103-71-9	alpha-Chlordane		0.00413	0.00984	0.0197	U
319-85-7	beta-BHC		0.00197	0.00984	0.0197	U
319-86-8	delta-BHC		0.00246	0.00984	0.0197	U
60-57-1	Dieldrin		0.00197	0.00984	0.0197	U
959-98-8	Endosulfan I		0.00187	0.00984	0.0197	U
33213-65-9	Endosulfan II		0.00236	0.00984	0.0197	U
1031-07-8	Endosulfan sulfate		0.00217	0.00984	0.0197	U
72-20-8	Endrin		0.00217	0.00984	0.0197	U
7421-93-4	Endrin aldehyde		0.00128	0.00984	0.0197	U
53494-70-5	Endrin ketone		0.00246	0.00984	0.0197	U
58-89-9	gamma-BHC		0.00187	0.00984	0.0197	U
5566-34-7	gamma-Chlordane		0.00325	0.00984	0.0197	U
76-44-8	Heptachlor		0.00502	0.0197	0.0394	U
1024-57-3	Heptachlor epoxide		0.00177	0.00984	0.0197	U
72-43-5	Methoxychlor		0.00984	0.0197	0.0394	U
8001-35-2	Toxaphene		0.295	0.788	1.97	U

Italicized = secondary result

*Handwritten signature and date: 1-22-19*

**1 - FORM I**  
**ANALYSIS DATA SHEET**

18111413

Laboratory:	Environmental Monitoring and Technologies, Inc			SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.			Project:	1004530.0470.001.01
Matrix:	Water	Laboratory ID:	18L0492-02	File ID:	A18L17010R
Sampled:	12/11/18 00:00	Prepared:	12/14/18 11:14	Analyzed:	12/17/18 15:58
Solids:		Preparation:	3510_PCB	Dilution:	1
Batch:	B8L0481	Sequence:	S8L0236	Calibration:	EJ80066
				Instrument:	A

CAS NO.	COMPOUND	CONC. (ug/L)	MDL	LOD	RL	Q
12674-11-2	Aroclor 1016 [2C]		0.0787	0.295	0.394	U
11104-28-2	Aroclor 1221 [2C]		0.189	0.492	0.591	U
11141-16-5	Aroclor 1232 [2C]		0.160	0.492	0.591	U
53469-21-9	Aroclor 1242 [2C]		0.154	0.492	0.591	U
12672-29-6	Aroclor 1248 [2C]		0.157	0.492	0.591	U
11097-69-1	Aroclor 1254 [2C]		0.173	0.492	0.591	U
11096-82-5	Aroclor 1260 [2C]		0.110	0.295	0.394	U
1336-36-3	Total PCB [2C]		0.189	0.492	0.591	U

Italicized = secondary result

*MWH*



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### MEMORANDUM

DATE: January 29, 2019

TO: Steve Hall, START-IV Project Manager, E & E, Seattle, Washington

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington *MW*

SUBJ: **Inorganic Data Quality Assurance Review, May Creek Removal Action Site, Renton, Washington**

REF: TO: TO-68HE0718F0470 PAN: 1004530.0470.001.01

The data quality assurance review of one soil sample collected from the May Creek Removal Action site in Renton, Washington, has been completed. Resource Conservation and Recovery Act (RCRA) metals analyses (EPA Methods 6010 and 7471) were performed by Environmental Monitoring and Technologies, Inc., Morton Grove, Illinois. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Manual Process (S2B/4VM).

The sample was numbered: 18110001

#### Data Qualifications:

**1. Sample Holding Times: Acceptable.**

The sample was maintained at  $< 6^{\circ}\text{C}$  (only applies to mercury). The sample was collected on December 11, 2018, and was analyzed by December 13, 2018, therefore meeting QC criteria of less than 6 months between collection, extraction, and analysis (28 days for mercury).

**2. Initial and Continuing Calibration: Acceptable.**

A minimum of one calibration standard and a blank were analyzed at the beginning of the ICP analysis sequence and after every 10 samples. No results were greater than 110% of the highest calibration standard. All ICP recoveries were within the QC limits. All AA recoveries were within QC limits and the initial calibration correlation coefficient was  $> 0.995$ .

**3. Blanks: Acceptable.**

A preparation blank was analyzed for each 20 samples or per matrix per concentration level. Blanks were analyzed after each Initial or Continuing Calibration Verification. There were no detections in any blanks.

**4. ICP Interference Check Sample: Acceptable.**

An Interference Check Sample (ICS) was analyzed at the beginning of each sequence. All applicable ICS (solution AB) results were within QC limits of 80% - 120% recovery.

**5. Performance Evaluation Sample Analysis: Not Provided.**

Performance evaluation samples were not provided to the laboratory.

**6. ICP Serial Dilution: Acceptable.**

A serial dilution analysis was performed per matrix per concentration or per sample delivery group, whichever was more frequent. All serial dilution results were within QC limits.

**7. Matrix Spike Analysis: Satisfactory.**

A matrix spike analysis was performed per SDG or per matrix per concentration level, whichever was more frequent. Spike recoveries were within the QC limits except barium with a high recovery (associated positive results were qualified as estimated quantities with a high bias [JH]).

**8. Duplicate Analysis: Satisfactory.**

A laboratory duplicate analysis was performed per SDG or per matrix per concentration level, whichever was more frequent. All duplicate results were within QC limits except silver; associated positive results and sample quantitation limits were qualified as estimated quantities with an unknown bias (JK or UJK).

**9. Laboratory Control Sample Analysis: Acceptable.**

A Laboratory Control Sample (LCS) was analyzed per SDG per matrix. All LCS results were within the established control limits.

**10. Overall Assessment of Data for Use**

A total of 8 results were validated in this data memorandum. No sample results were qualified as estimated quantities (J) based on holding time outliers, incorrect sample containers, sample temperature outliers, or serial dilution outliers. No sample results were rejected (R). A total of one sample result was qualified as an estimated quantity (J) based on duplicate precision outliers. A total of one sample result was qualified as an estimated quantity (J) based on spike accuracy outliers.

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the analytical method(s), the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, and/or the Office of Emergency and Remedial Response Publication "National Functional Guidelines for Superfund Inorganic Methods Data Review, January 2017". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

H - The sample result is biased high.

J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

K - The bias of the sample is not known.

L - The sample result is biased low.

- Q - Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.
- R - The data is rejected and unusable. The analyte may or may not be present in the sample.
- U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.

# 1 - FORM I

## ANALYSIS DATA SHEET

18110001

Laboratory:	Environmental Monitoring and Tech	SDG:	
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Surface Soil	Laboratory ID:	18L0442-01
Sampled:	12/11/18 14:20	Prepared:	12/12/18 09:26
Solids:	32.28	Preparation:	3050_METALS_PREP
Initial/Final:	2.0183 g / 50 ml	Analyzed:	12/12/18 18:29
Batch:	B8L0398	Dilution:	10
Sequence:	S8L0171	Calibration:	EL80031
		Instrument:	ICP-AES 7400

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7440-38-2	Arsenic	14.7	13.8	30.7	38.4	J, D Q
7440-43-9	Cadmium	1.61	1.38	3.07	3.84	J, D Q
7440-22-4	Silver		2.46	7.67	38.4	U JK

*MW 12/19*

**1 - FORM I**  
**ANALYSIS DATA SHEET**

18110001

Laboratory:	Environmental Monitoring and Tech			SDG:		
Client:	Ecology and Environment, Inc.			Project:	1004530.0470.001.01	
Matrix:	Surface Soil	Laboratory ID:	18L0442-01RE1	File ID:	12122018-062	
Sampled:	12/11/18 14:20	Prepared:	12/12/18 09:26	Analyzed:	12/12/18 19:58	
Solids:	32.28	Preparation:	3050_METALS_PREP	Dilution:	1	
Initial/Final:	2.0183 g / 50 ml					
Batch:	B8L0398	Sequence:	S8L0171	Calibration:	EL80031	Instrument: ICP-AES 7400

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7440-39-3	Barium	125 JH	1.07	3.07	3.84	
7440-47-3	Chromium	34.3	0.844	3.07	3.84	
7439-92-1	Lead	93.5	1.53	3.07	3.84	
7782-49-2	Selenium		1.38	3.07	3.84	U

JW 12/19/18

**1 - FORM I**  
**ANALYSIS DATA SHEET**

18110001

Laboratory:	Environmental Monitoring and Tech			SDG:	
Client:	Ecology and Environment, Inc.			Project:	1004530.0470.001.01
Matrix:	Surface Soil	Laboratory ID:	18L0442-01	File ID:	121318S-024
Sampled:	12/11/18 14:20	Prepared:	12/13/18 07:35	Analyzed:	12/13/18 10:12
Solids:	32.28	Preparation:	7471_HG_PREP	Dilution:	1
Initial/Final:	0.5324 g / 50 ml				
Batch:	B8L0433	Sequence:	S8L0178	Calibration:	EL80032
				Instrument:	Hg Hydra

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
7439-97-6	Mercury	0.129	0.058	0.116	0.175	JQ

MW 12/19





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### MEMORANDUM

DATE: January 29, 2019

TO: Steve Hall, START-IV Project Manager, E & E, Seattle, Washington

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington *MW*

SUBJ: **Organic Data Quality Assurance Review, May Creek Removal Action Site, Renton, Washington**

REF: TO: TO-68HE0718F0470 PAN: 1004530.0470.001.01

The data quality assurance review of one soil sample collected from the May Creek Removal Action site located in Renton, Washington, has been completed. Analysis for Polychlorinated Biphenyls (PCBs - EPA Method 8082) was performed by Environmental Monitoring and Technologies, Inc., Morton Grove, Illinois. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Manual Process (S2B/4VM).

The sample was numbered: 18110001

#### Data Qualifications:

**1. Sample Holding Times: Acceptable.**

The sample was maintained at 0°C to 6°C. The sample was collected on December 11, 2018, extracted on December 12, 2018, and was analyzed by December 12, 2018. There are no holding time limits for Method 8082 PCBs.

**2. Instrument Performance: Acceptable.**

The surrogate retention time percent difference between the initial calibration standards and the remaining standards and samples was  $\leq 0.3\%$  for capillary column analyses.

**3. Initial and Continuing Calibration: Acceptable.**

All initial calibration relative standard deviations (RSDs) were within QC limits. All continuing calibration % differences (% D) were within QC limits.

**4. Blanks: Acceptable.**

A method blank was prepared at the required frequency of every time samples were extracted for each matrix and for each concentration level, or every 20 samples, whichever is greater, and for each analytical system. No target analytes were detected in the laboratory blanks.

**5. Performance Evaluation Samples: Not Provided.**

Performance evaluation samples were not provided to the laboratory.

**6. System Monitoring Compounds (SMCs): Satisfactory.**

All recoveries of the SMCs were within QC limits except DCB in the blank spike with a high recovery. No actions were taken as the blank spike PCB recoveries were within QC limits.

**7. Blank Spike (BS), Matrix Spike (MS) and MS Duplicate (MSD) Analyses: Acceptable.**

BS, MS, and MSD recoveries were within QC limits.

**8. Duplicates: Acceptable.**

Relative Percent Differences (RPDs) of all spiked analytes were within the required control limits.

**9. Compound Identification: Acceptable.**

All positive sample results were dual-column confirmed with differences between the columns less than 25%.

**10. Target Compound Quantitation and Quantitation Limits: Acceptable.**

Sample results and quantitation limits were correctly calculated.

**11. Laboratory Contact**

No laboratory contact was required.

**12. Overall Assessment**

A total of seven results were validated in this data memorandum. No sample results were qualified as estimated quantities (J) based on duplicate precision outliers, spike accuracy outliers, holding time outliers, incorrect sample containers, or sample temperature outliers. No sample results were rejected (R).

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the analytical method(s), the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, and/or the Office of Emergency and Remedial Response Publication "National Functional Guidelines for Superfund Organic Methods Data Review, January 2017". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

H - The sample result is biased high.

J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

K - The bias of the sample is not known.

- L - The sample result is biased low.
- Q - Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.
- R - The data is rejected and unusable. The analyte may or may not be present in the sample.
- U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.

**1 - FORM I**  
**ANALYSIS DATA SHEET**

18110001

Laboratory: Environmental Monitoring and Technologies, Inc      SDG:  
Client: Ecology and Environment, Inc.      Project: 1004530.0470.001.01  
Matrix: Surface Soil      Laboratory ID: 18L0442-01      File ID: A18L12013  
Sampled: 12/11/18 14:20      Prepared: 12/12/18 11:04      Analyzed: 12/12/18 16:47  
Solids: 32.28      Preparation: 3546\_PCB      Dilution: 1  
Batch: B8L0403      Sequence: S8L0174      Calibration: EJ80066      Instrument: A  
Column: 1

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	MDL	LOD	RL	Q
12674-11-2	Aroclor 1016		0.143	0.459	0.612	U
11104-28-2	Aroclor 1221		0.404	0.917	1.53	U
11141-16-5	Aroclor 1232		0.123	0.306	0.612	U
53469-21-9	Aroclor 1242		0.116	0.306	0.612	U
12672-29-6	Aroclor 1248		0.127	0.306	0.612	U
11097-69-1	Aroclor 1254		0.128	0.306	0.612	U
11096-82-5	Aroclor 1260		0.158	0.459	0.612	U
1336-36-3	Total PCB		0.404	0.917	1.53	U

*MW/2010*



# ecology and environment, inc.

Global Environmental Specialists

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## MEMORANDUM

DATE: January 29, 2019

TO: Steve Hall, START-IV Project Manager, E & E, Seattle, Washington

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington *MW*

SUBJ: **Organic Data Quality Assurance Review, May Creek Removal Action Site, Renton, Washington**

REF: TO: TO-68HE0718F0470 PAN: 1004530.0470.001.01

The data quality assurance review of 19 soil and 10 water samples collected from the May Creek Removal Action site in Renton, Washington, has been completed. Semivolatile Organic Compound (SVOC) analysis (EPA Method 8270) was performed by Environmental Monitoring and Technologies, Inc., Morton Grove, Illinois. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Manual Process (S2B/4VM).

The samples were numbered:

18111116	18111117	18111118	18111119	18111120
18111121	18111122	18111123	18111124	18111401
18111402	18111403	18111404	18111405	18111406
18111408	18111409	18111410	18111411	18111412
18111413	18111127	18111128	18111129	18111130
18111131	18111132	18111133	18111134	

### Data Qualifications:

#### 1. Sample Holding Times: Acceptable.

The samples were maintained and received within the QC limits of 0°C to 6°C. The samples were collected between December 10 and 12, 2018, were extracted between December 13 and 18, 2018, and were analyzed by December 21, 2018, therefore meeting holding time criteria of less than 14 days between collection and extraction (7 days for water samples) and less than 40 days between extraction and analysis.

#### 2. Tuning: Acceptable.

Tuning was performed at the beginning of each 12-hour analysis sequence. All results were within QC limits.

#### 3. Initial Calibration: Acceptable.

All average Relative Response Factors (RRFs) were within the QC limits. All Relative Standard Deviations (RSDs) were within the QC limits.

**4. Continuing Calibration: Acceptable.**

All RRFs were within the QC limits. All % differences were within the QC limits.

**5. Blanks: Satisfactory.**

A method blank was analyzed for each 20 sample batch per matrix. There were no detections in any method blank except bis(2-ethylhexyl)phthalate (10.2 ug/kg) in blank B8L0502 and in blank B8L0593 (22.7 ug/kg). Associated positive sample results less than the reporting limit were qualified as not detected (U).

**6. System Monitoring Compounds (SMCs): Satisfactory.**

All SMC recoveries were within QC limits except one high SMC in samples 18111123 and 18111124. No actions were taken based on one high SMC result per sample.

**7. Matrix Spike (MS)/MS Duplicate (MSD) Analysis: Satisfactory.**

MS and MSD analyses were performed per SDG or per matrix per concentration level, whichever was more frequent. All recoveries were within QC limits except 3,3'-dichlorobenzidine, 4-nitrophenol, benzo(g,h,i)perylene, and indeno(1,2,3-cd)pyrene with low recoveries, benzidine, benzoic acid, and 2,4-dinitrophenol with 0% recoveries, di-n-octylphthalate with high recoveries (all associated with batch 0735), benzidine with low recoveries associated with batch 0091, a high di-n-octylphthalate recovery in sample B8L0502-MSD1, a low benzoic acid recovery in sample B8L0519-MS1, and a high di-n-octylphthalate recovery in sample B8L0593-MSD1; no qualifiers were applied based on these outliers alone.

**8. Blank Spike (BS)/BS Duplicate (BSD) Analysis: Acceptable.**

BS and BSD analyses were performed per SDG or per matrix per concentration level, whichever was more frequent. All recoveries were within QC limits.

**9. Duplicate Analysis: Satisfactory.**

Spike duplicate analyses were performed per SDG or per matrix per concentration level, whichever was more frequent. All spike duplicate results were within QC limits except 2,4-dimethylphenol and benzidine in sample B8L0502-MSD1, 2-nitroaniline, benzidine, benzo(g,h,i)perylene, benzoic acid, dibenzo(a,h)anthracene in sample B8L0519-MSD, 2,4-dichlorophenol, 2,4-dinitrophenol, di-n-octylphthalate, 2,4-dimethylphenol, and naphthalene in sample B8L0593-MSD. No qualifiers were applied based on the duplicate outliers alone.

**10. Internal Standards: Satisfactory.**

All internal standards (IS) were within  $\pm 30$  seconds of the continuing calibration IS retention times. All associated area counts were within 50 % to 200 % of the continuing calibration area counts except low perylene-d12 results in samples 18111119RE1, 18111124RE2, 18111120RE1, and 18111121RE1. Associated sample quantitation limits were qualified as estimated quantities with an unknown bias (UJK).

**11. Performance Evaluation Sample Analysis: Not Provided.**

Performance evaluation samples were not provided to the laboratory.

## 12. Overall Assessment of Data for Use

Some updates were provided after the original results were provided; these updated results were manually corrected by the data validator.

A total of 2,146 results were validated in this data memorandum. No sample results were qualified as estimated quantities (J) based on duplicate precision outliers, holding time outliers, incorrect sample containers, or sample temperature outliers. A total of 28 sample results were qualified as estimated quantities based on spike accuracy outliers. The following analyte was detected in the method blank: bis(2-ethylhexyl)phthalate. No sample results were rejected (R).

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the analytical method(s), the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, and/or the Office of Emergency and Remedial Response Publication "National Functional Guidelines for Superfund Organic Methods Data Review, January 2017". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

### Data Qualifiers and Definitions

- H - The sample result is biased high.
- J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
- K - The bias of the sample is not known.
- L - The sample result is biased low.
- N - The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification".
- NJ - The analyte has been "tentatively identified" or "presumptively" as present and the associated numerical value is the estimated concentration in the sample.
- Q - Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.
- R - The data is rejected and unusable. The analyte may or may not be present in the sample.
- U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.

# 1 - FORM I

## ANALYSIS DATA SHEET

18111116

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0443-04
		File ID:	S18L18016.D
Sampled:	12/10/18 11:00	Prepared:	12/15/18 14:20
		Analyzed:	12/18/18 23:00
Solids:	77.81	Preparation:	3550_B
		Dilution:	1
Initial/Final:	39.9313 g / 1 ml		
Batch:	B8L0502	Sequence:	S8L0259
		Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
120-82-1	1,2,4-Trichlorobenzene		7.52	25.7	51.5	U
95-50-1	1,2-Dichlorobenzene		8.63	25.7	51.5	U
541-73-1	1,3-Dichlorobenzene		7.55	25.7	51.5	U
106-46-7	1,4-Dichlorobenzene		9.84	25.7	51.5	U
95-95-4	2,4,5-Trichlorophenol		4.57	12.9	25.7	U
88-06-2	2,4,6-Trichlorophenol		3.30	12.9	25.7	U
120-83-2	2,4-Dichlorophenol		4.12	12.9	25.7	U
105-67-9	2,4-Dimethylphenol		5.31	12.9	25.7	U
51-28-5	2,4-Dinitrophenol		127	386	772	U
121-14-2	2,4-Dinitrotoluene		8.49	103	154	U
606-20-2	2,6-Dinitrotoluene		4.58	51.5	103	U
91-58-7	2-Chloronaphthalene		5.47	12.9	25.7	U
95-57-8	2-Chlorophenol		5.75	12.9	25.7	U
91-57-6	2-Methylnaphthalene		4.98	12.9	25.7	U
95-48-7	2-Methylphenol		2.96	6.44	12.9	U
88-74-4	2-Nitroaniline		3.47	12.9	25.7	U
88-75-5	2-Nitrophenol		4.03	51.5	103	U
84989-04-8	3 & 4-Methylphenol		10.0	25.7	51.5	U
99-09-2	3-Nitroaniline		6.23	19.3	38.6	U
534-52-1	4,6-Dinitro-2-methylphenol		61.5	193	386	U
101-55-3	4-Bromophenyl-phenylether		6.82	19.3	38.6	U
59-50-7	4-Chloro-3-methylphenol		3.53	12.9	25.7	U
106-47-8	4-Chloroaniline		6.19	19.3	38.6	U
7005-72-3	4-Chlorophenyl-phenylether		6.53	19.3	38.6	U
100-01-6	4-Nitroaniline		5.11	25.7	51.5	U
100-02-7	4-Nitrophenol		83.3	257	515	U
83-32-9	Acenaphthene		5.17	12.9	25.7	U
208-96-8	Acenaphthylene		3.41	12.9	25.7	U
120-12-7	Anthracene		2.69	6.44	12.9	U

*MW Hata*



# 1 - FORM I

## ANALYSIS DATA SHEET

18111116

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0443-04
		File ID:	S18L18016.D
Sampled:	12/10/18 11:00	Prepared:	12/15/18 14:20
		Analyzed:	12/18/18 23:00
Solids:	77.81	Preparation:	3550_B
		Dilution:	1
Initial/Final:	39.9313 g / 1 ml		
Batch:	B8L0502	Sequence:	S8L0259
		Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
103-33-3	Azobenzene as 1,2-Diphenylhydrazine		3.68	12.9	25.7	U
92-87-5	Benzidine		53.4	1290	3000	U
65-85-0	Benzoic acid		128	772	1290	U
100-51-6	Benzyl alcohol		4.96	12.9	25.7	U
111-91-1	Bis(2-chloroethoxy)methane		5.64	12.9	25.7	U
111-44-4	Bis(2-chloroethyl)ether		68.2	193	386	U
108-60-1	Bis(2-chloroisopropyl)ether		86.9	257	515	U
86-74-8	Carbazole		4.34	12.9	25.7	U
53-70-3	Dibenzo(a,h)anthracene		3.84	51.5	103	U
132-64-9	Dibenzofuran		5.76	12.9	25.7	U
84-66-2	Diethyl phthalate		3.77	12.9	25.7	U
131-11-3	Dimethyl phthalate		2.36	6.44	12.9	U
84-74-2	Di-n-butyl phthalate		4.77	12.9	25.7	U
206-44-0	Fluoranthene		3.54	12.9	25.7	U
86-73-7	Fluorene		5.07	12.9	25.7	U
118-74-1	Hexachlorobenzene		4.96	12.9	25.7	U
87-68-3	Hexachlorobutadiene		7.92	25.7	51.5	U
77-47-4	Hexachlorocyclopentadiene		96.8	257	515	U
67-72-1	Hexachloroethane		7.06	25.7	51.5	U
78-59-1	Isophorone		30.6	77.2	154	U
91-20-3	Naphthalene		7.08	25.7	51.5	U
98-95-3	Nitrobenzene		6.68	25.7	51.5	U
62-75-9	N-Nitrosodimethylamine		9.74	25.7	51.5	U
621-64-7	N-Nitrosodi-n-propylamine		12.1	38.6	77.2	U
86-30-6	N-Nitrosodiphenylamine		3.66	12.9	25.7	U
87-86-5	Pentachlorophenol		69.3	193	386	U
85-01-8	Phenanthrene		5.66	12.9	25.7	U
108-95-2	Phenol		7.11	25.7	51.5	U

Italicized = secondary result

*MW H019*

# 1 - FORM I

## ANALYSIS DATA SHEET

18111116

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0443-04RE1
		File ID:	S18L18008.D
Sampled:	12/10/18 11:00	Prepared:	12/15/18 14:20
		Analyzed:	12/18/18 18:29
Solids:	77.81	Preparation:	3550_B
		Dilution:	5
Initial/Final:	39.9313 g / 1 ml		
Batch:	B8L0502	Sequence:	S8L0259
		Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
<del>120-82-1</del>	<del>1,2,4-Trichlorobenzene</del>		37.6	129	257	<del>U</del> <i>R</i>
<del>88-06-2</del>	<del>2,4,6-Trichlorophenol</del>		16.5	64.4	129	<del>U</del> <i>R</i>
91-94-1	3,3'-Dichlorobenzidine		123	257	515	U <i>TA</i>
56-55-3	Benzo(a)anthracene		8.86	32.2	64.4	U
117-81-7	Bis(2-ethylhexyl)phthalate	<del>99.8</del> <i>mu</i>	54.0	193	386	<del>U, D, B</del> <i>mu</i>
85-68-7	Butyl benzyl phthalate		53.3	193	386	U <i>mu</i>
129-00-0	Pyrene	27.4	9.12	32.2	64.4	J, <i>mu</i>

Italicized = secondary result

*MW Hota*

# 1 - FORM I

## ANALYSIS DATA SHEET

18111116

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0443-04RE2
		File ID:	S18L19008.D
Sampled:	12/10/18 11:00	Prepared:	12/15/18 14:20
		Analyzed:	12/19/18 13:46
Solids:	77.81	Preparation:	3550_B
		Dilution:	25
Initial/Final:	39.9313 g / 1 ml		
Batch:	B8L0502	Sequence:	S8L0277
		Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
50-32-8	Benzo(a)pyrene		197	1290	2570	U
205-99-2	Benzo(b)fluoranthene		100	1290	2570	U
191-24-2	Benzo(g,h,i)perylene		143	644	1290	U
207-08-9	Benzo(k)fluoranthene		157	644	1290	U
53-70-3	Dibenzo(a,h)anthracene		95.9	1290	2570	U
117-84-0	Di-n-octyl phthalate		486	1290	2570	U
193-39-5	Indeno(1,2,3-cd)pyrene		102	1290	2570	U

Italicized = secondary result

# 1 - FORM I

## ANALYSIS DATA SHEET

18111117

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0443-05
		File ID:	S18L18017.D
Sampled:	12/10/18 11:30	Prepared:	12/15/18 14:20
		Analyzed:	12/18/18 23:33
Solids:	78.07	Preparation:	3550_B
		Dilution:	1
Initial/Final:	40.0385 g / 1 ml		
Batch:	B8L0502	Sequence:	S8L0259
		Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
95-50-1	1,2-Dichlorobenzene		8.58	25.6	51.2	U
541-73-1	1,3-Dichlorobenzene		7.50	25.6	51.2	U
106-46-7	1,4-Dichlorobenzene		9.78	25.6	51.2	U
95-95-4	2,4,5-Trichlorophenol		4.55	12.8	25.6	U
88-06-2	2,4,6-Trichlorophenol		3.28	12.8	25.6	U
120-83-2	2,4-Dichlorophenol		4.09	12.8	25.6	U
105-67-9	2,4-Dimethylphenol		5.28	12.8	25.6	U
51-28-5	2,4-Dinitrophenol		126	384	768	U
121-14-2	2,4-Dinitrotoluene		8.44	102	154	U
606-20-2	2,6-Dinitrotoluene		4.55	51.2	102	U
91-58-7	2-Chloronaphthalene		5.44	12.8	25.6	U
95-57-8	2-Chlorophenol		5.71	12.8	25.6	U
91-57-6	2-Methylnaphthalene		4.95	12.8	25.6	U
95-48-7	2-Methylphenol		2.94	6.40	12.8	U
88-74-4	2-Nitroaniline		3.45	12.8	25.6	U
88-75-5	2-Nitrophenol		4.00	51.2	102	U
84989-04-8	3 & 4-Methylphenol		9.98	25.6	51.2	U
99-09-2	3-Nitroaniline		6.20	19.2	38.4	U
534-52-1	4,6-Dinitro-2-methylphenol		61.2	192	384	U
101-55-3	4-Bromophenyl-phenylether		6.78	19.2	38.4	U
59-50-7	4-Chloro-3-methylphenol		3.51	12.8	25.6	U
106-47-8	4-Chloroaniline		6.15	19.2	38.4	U
7005-72-3	4-Chlorophenyl-phenylether		6.49	19.2	38.4	U
100-01-6	4-Nitroaniline		5.08	25.6	51.2	U
100-02-7	4-Nitrophenol		82.8	256	512	U
83-32-9	Acenaphthene		5.14	12.8	25.6	U
208-96-8	Acenaphthylene		3.39	12.8	25.6	U
120-12-7	Anthracene		2.67	6.40	12.8	U
103-33-3	Azobenzene as 1,2-Diphenylhydrazine		3.66	12.8	25.6	U

*MWH*

# 1 - FORM I

## ANALYSIS DATA SHEET

18111117

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0443-05
		File ID:	S18L18017.D
Sampled:	12/10/18 11:30	Prepared:	12/15/18 14:20
		Analyzed:	12/18/18 23:33
Solids:	78.07	Preparation:	3550_B
		Dilution:	1
Initial/Final:	40.0385 g / 1 ml		
Batch:	B8L0502	Sequence:	S8L0259
		Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
92-87-5	Benzidine		53.1	1280	2990	U
56-55-3	Benzo(a)anthracene		1.76	6.40	12.8	U
65-85-0	Benzoic acid		127	768	1280	U
100-51-6	Benzyl alcohol		4.93	12.8	25.6	U
111-91-1	Bis(2-chloroethoxy)methane		5.60	12.8	25.6	U
111-44-4	Bis(2-chloroethyl)ether		67.8	192	384	U
108-60-1	Bis(2-chloroisopropyl)ether		86.4	256	512	U
86-74-8	Carbazole		4.31	12.8	25.6	U
218-01-9	Chrysene		4.08	12.8	25.6	U
<del>53-76-3</del>	<del>Dibenzo(a,h)anthracene</del>		<del>3.81</del>	<del>51.2</del>	<del>102</del>	<del>U</del>
132-64-9	Dibenzofuran		5.73	12.8	25.6	U
84-66-2	Diethyl phthalate		3.74	12.8	25.6	U
131-11-3	Dimethyl phthalate		2.35	6.40	12.8	U
84-74-2	Di-n-butyl phthalate	208	4.75	12.8	25.6	
206-44-0	Fluoranthene	17.0	3.52	12.8	25.6	JQ
86-73-7	Fluorene		5.04	12.8	25.6	U
118-74-1	Hexachlorobenzene		4.93	12.8	25.6	U
87-68-3	Hexachlorobutadiene		7.88	25.6	51.2	U
77-47-4	Hexachlorocyclopentadiene		96.2	256	512	U
67-72-1	Hexachloroethane		7.02	25.6	51.2	U
78-59-1	Isophorone		30.4	76.8	154	U
91-20-3	Naphthalene		7.04	25.6	51.2	U
98-95-3	Nitrobenzene		6.64	25.6	51.2	U
62-75-9	N-Nitrosodimethylamine		9.68	25.6	51.2	U
621-64-7	N-Nitrosodi-n-propylamine		12.0	38.4	76.8	U
86-30-6	N-Nitrosodiphenylamine		3.63	12.8	25.6	U
87-86-5	Pentachlorophenol		68.9	192	384	U
85-01-8	Phenanthrene	38.1	5.62	12.8	25.6	
108-95-2	Phenol		7.07	25.6	51.2	U

*M. Hota*

# 1 - FORM I

## ANALYSIS DATA SHEET

18111117

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0443-05RE1
		File ID:	S18L18009.D
Sampled:	12/10/18 11:30	Prepared:	12/15/18 14:20
		Analyzed:	12/18/18 19:04
Solids:	78.07	Preparation:	3550_B
		Dilution:	5
Initial/Final:	40.0385 g / 1 ml		
Batch:	B8L0502	Sequence:	S8L0259
		Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
120-82-1	1,2,4-Trichlorobenzene		37.4	128	256	U
<del>88-74-4</del>	<del>2-Nitroaniline</del>		<del>17.2</del>	<del>64.0</del>	<del>128</del>	<del>U</del> <i>me</i>
91-94-1	3,3'-Dichlorobenzidine		122	256	512	U
<del>106-47-8</del>	<del>4-Chloroaniline</del>		<del>30.7</del>	<del>96.0</del>	<del>192</del>	<del>U</del> <i>me</i>
<del>111-91-1</del>	<del>Bis(2-chloroethoxy)methane</del>		<del>28.0</del>	<del>64.0</del>	<del>128</del>	<del>U</del> <i>me</i>
117-81-7	Bis(2-ethylhexyl)phthalate	<del>214</del>	53.7	192	384	U <i>J. B. B. Q</i>
85-68-7	Butyl benzyl phthalate	126	53.0	192	384	<i>J. B. B. Q</i>
129-00-0	Pyrene	67.2	9.06	32.0	64.0	<i>me</i>

Italicized = secondary result

*me/fo/19*

# 1 - FORM I

## ANALYSIS DATA SHEET

18111117

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0443-05RE2
		File ID:	S18L19009.D
Sampled:	12/10/18 11:30	Prepared:	12/15/18 14:20
		Analyzed:	12/19/18 14:23
Solids:	78.07	Preparation:	3550_B
		Dilution:	25
Initial/Final:	40.0385 g / 1 ml		
Batch:	B8L0502	Sequence:	S8L0277
		Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
50-32-8	Benzo(a)pyrene		196	1280	2560	U
205-99-2	Benzo(b)fluoranthene		99.8	1280	2560	U
191-24-2	Benzo(g,h,i)perylene		142	640	1280	U
207-08-9	Benzo(k)fluoranthene		156	640	1280	U
53-70-3	Dibenzo(a,h)anthracene		95.4	1280	2560	U
117-84-0	Di-n-octyl phthalate		483	1280	2560	U
193-39-5	Indeno(1,2,3-cd)pyrene		102	1280	2560	U

Italicized = secondary result

*mwf-1010*

# 1 - FORM I

## ANALYSIS DATA SHEET

18111118

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0443-06
		File ID:	S18L18018.D
Sampled:	12/10/18 13:45	Prepared:	12/15/18 14:20
		Analyzed:	12/19/18 00:06
Solids:	78.61	Preparation:	3550_B
		Dilution:	1
Initial/Final:	50.0214 g / 1 ml		
Batch:	B8L0502	Sequence:	S8L0259
		Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
120-82-1	1,2,4-Trichlorobenzene		5.94	20.3	40.7	U
95-50-1	1,2-Dichlorobenzene		6.82	20.3	40.7	U
541-73-1	1,3-Dichlorobenzene		5.96	20.3	40.7	U
106-46-7	1,4-Dichlorobenzene		7.77	20.3	40.7	U
95-95-4	2,4,5-Trichlorophenol		3.61	10.2	20.3	U
88-06-2	2,4,6-Trichlorophenol		2.60	10.2	20.3	U
120-83-2	2,4-Dichlorophenol		3.25	10.2	20.3	U
105-67-9	2,4-Dimethylphenol		4.20	10.2	20.3	U
51-28-5	2,4-Dinitrophenol		100	305	610	U
121-14-2	2,4-Dinitrotoluene		6.71	81.4	122	U
606-20-2	2,6-Dinitrotoluene		3.62	40.7	81.4	U
91-58-7	2-Chloronaphthalene		4.32	10.2	20.3	U
95-57-8	2-Chlorophenol		4.54	10.2	20.3	U
91-57-6	2-Methylnaphthalene		3.93	10.2	20.3	U
95-48-7	2-Methylphenol		2.34	5.09	10.2	U
88-74-4	2-Nitroaniline		2.74	10.2	20.3	U
88-75-5	2-Nitrophenol		3.18	40.7	81.4	U
84989-04-8	3 & 4-Methylphenol		7.94	20.3	40.7	U
99-09-2	3-Nitroaniline		4.92	15.3	30.5	U
534-52-1	4,6-Dinitro-2-methylphenol		48.6	153	305	U
101-55-3	4-Bromophenyl-phenylether		5.39	15.3	30.5	U
59-50-7	4-Chloro-3-methylphenol		2.79	10.2	20.3	U
7005-72-3	4-Chlorophenyl-phenylether		5.16	15.3	30.5	U
100-01-6	4-Nitroaniline		4.04	20.3	40.7	U
100-02-7	4-Nitrophenol		65.8	203	407	U
83-32-9	Acenaphthene		4.08	10.2	20.3	U
208-96-8	Acenaphthylene		2.70	10.2	20.3	U
120-12-7	Anthracene		2.12	5.09	10.2	U
103-33-3	Azobenzene as 1,2-Diphenylhydrazine		2.91	10.2	20.3	U

*M. H. 19*



# 1 - FORM I

## ANALYSIS DATA SHEET

18111118

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0443-06
		File ID:	S18L18018.D
Sampled:	12/10/18 13:45	Prepared:	12/15/18 14:20
		Analyzed:	12/19/18 00:06
Solids:	78.61	Preparation:	3550_B
		Dilution:	1
Initial/Final:	50.0214 g / 1 ml		
Batch:	B8L0502	Sequence:	S8L0259
		Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
92-87-5	Benzidine		42.2	1020	2370	U
65-85-0	Benzoic acid		101	610	1020	U
100-51-6	Benzyl alcohol		3.92	10.2	20.3	U
111-44-4	Bis(2-chloroethyl)ether		53.9	153	305	U
108-60-1	Bis(2-chloroisopropyl)ether		68.7	203	407	U
85-68-7	Butyl benzyl phthalate		8.43	30.5	61.0	U
86-74-8	Carbazole		3.43	10.2	20.3	U
132-64-9	Dibenzofuran		4.55	10.2	20.3	U
84-66-2	Diethyl phthalate		2.98	10.2	20.3	U
131-11-3	Dimethyl phthalate		1.87	5.09	10.2	U
84-74-2	Di-n-butyl phthalate		3.77	10.2	20.3	U
206-44-0	Fluoranthene		2.80	10.2	20.3	U
86-73-7	Fluorene		4.00	10.2	20.3	U
118-74-1	Hexachlorobenzene		3.92	10.2	20.3	U
87-68-3	Hexachlorobutadiene		6.26	20.3	40.7	U
77-47-4	Hexachlorocyclopentadiene		76.5	203	407	U
67-72-1	Hexachloroethane		5.58	20.3	40.7	U
78-59-1	Isophorone		24.2	61.0	122	U
91-20-3	Naphthalene		5.59	20.3	40.7	U
98-95-3	Nitrobenzene		5.28	20.3	40.7	U
62-75-9	N-Nitrosodimethylamine		7.70	20.3	40.7	U
621-64-7	N-Nitrosodi-n-propylamine		9.54	30.5	61.0	U
86-30-6	N-Nitrosodiphenylamine		2.89	10.2	20.3	U
87-86-5	Pentachlorophenol		54.7	153	305	U
85-01-8	Phenanthrene		4.47	10.2	20.3	U
108-95-2	Phenol		5.62	20.3	40.7	U

Italicized = secondary result

*John Hota*

# 1 - FORM I

## ANALYSIS DATA SHEET

18111118

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0443-06RE1
		File ID:	S18L18010.D
Sampled:	12/10/18 13:45	Prepared:	12/15/18 14:20
		Analyzed:	12/18/18 19:38
Solids:	78.61	Preparation:	3550_B
		Dilution:	5
Initial/Final:	50.0214 g / 1 ml		
Batch:	B8L0502	Sequence:	S8L0259
		Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
91-94-1	3,3'-Dichlorobenzidine		96.9	203	407	U
106-47-8	4-Chloroaniline		24.4	76.3	153	U
56-55-3	Benzo(a)anthracene		7.00	25.4	50.9	U
111-91-1	Bis(2-chloroethoxy)methane		22.3	50.9	102	U
117-81-7	Bis(2-ethylhexyl)phthalate	<i>91.6</i>	42.7	153	305	<i>U, D, B</i>
85-68-7	Butyl benzyl phthalate		42.1	153	305	U
218-01-9	Chrysene		16.2	50.9	102	U
129-00-0	Pyrene		7.21	25.4	50.9	U

Italicized = secondary result

*M* 1-22-19

# 1 - FORM I

## ANALYSIS DATA SHEET

18111118

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0443-06RE2
		File ID:	S18L19010.D
Sampled:	12/10/18 13:45	Prepared:	12/15/18 14:20
		Analyzed:	12/19/18 15:00
Solids:	78.61	Preparation:	3550_B
		Dilution:	25
Initial/Final:	50.0214 g / 1 ml		
Batch:	B8L0502	Sequence:	S8L0277
		Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
50-32-8	Benzo(a)pyrene		156	1020	2030	U
205-99-2	Benzo(b)fluoranthene		79.3	1020	2030	U
191-24-2	Benzo(g,h,i)perylene		113	509	1020	U
207-08-9	Benzo(k)fluoranthene		124	509	1020	U
53-70-3	Dibenzo(a,h)anthracene		75.8	1020	2030	U
117-84-0	Di-n-octyl phthalate		384	1020	2030	U
193-39-5	Indeno(1,2,3-cd)pyrene		80.7	1020	2030	U

Italicized = secondary result

*MW H019*

# 1 - FORM I

## ANALYSIS DATA SHEET

18111119

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0443-07
		File ID:	S18L18011.D
Sampled:	12/10/18 14:20	Prepared:	12/15/18 14:20
		Analyzed:	12/18/18 20:12
Solids:	83.91	Preparation:	3550_B
		Dilution:	5
Initial/Final:	50.067 g / 2 ml		
Batch:	B8L0502	Sequence:	S8L0259
		Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
120-82-1	1,2,4-Trichlorobenzene		55.6	190	381	U
95-50-1	1,2-Dichlorobenzene		63.8	190	381	U
541-73-1	1,3-Dichlorobenzene		55.8	190	381	U
106-46-7	1,4-Dichlorobenzene		72.8	190	381	U
95-95-4	2,4,5-Trichlorophenol		33.8	95.2	190	U
88-06-2	2,4,6-Trichlorophenol		24.4	95.2	190	U
120-83-2	2,4-Dichlorophenol		30.5	95.2	190	U
105-67-9	2,4-Dimethylphenol		39.3	95.2	190	U
51-28-5	2,4-Dinitrophenol		939	2860	5710	U
121-14-2	2,4-Dinitrotoluene		62.8	762	1140	U
606-20-2	2,6-Dinitrotoluene		33.9	381	762	U
91-58-7	2-Chloronaphthalene		40.4	95.2	190	U
95-57-8	2-Chlorophenol		42.5	95.2	190	U
91-57-6	2-Methylnaphthalene		36.8	95.2	190	U
95-48-7	2-Methylphenol		21.9	47.6	95.2	U
88-74-4	2-Nitroaniline		25.6	95.2	190	U
88-75-5	2-Nitrophenol		29.8	381	762	U
84989-04-8	3 & 4-Methylphenol		74.3	190	381	U
99-09-2	3-Nitroaniline		46.1	143	286	U
534-52-1	4,6-Dinitro-2-methylphenol		455	1430	2860	U
101-55-3	4-Bromophenyl-phenylether		50.4	143	286	U
59-50-7	4-Chloro-3-methylphenol		26.1	95.2	190	U
106-47-8	4-Chloroaniline		45.8	143	286	U
7005-72-3	4-Chlorophenyl-phenylether		48.3	143	286	U
100-01-6	4-Nitroaniline		37.8	190	381	U
100-02-7	4-Nitrophenol		616	1900	3810	U
83-32-9	Acenaphthene		38.2	95.2	190	U
208-96-8	Acenaphthylene		25.2	95.2	190	U
120-12-7	Anthracene		19.9	47.6	95.2	U

*Mw Hoya*

# 1 - FORM I

## ANALYSIS DATA SHEET

18111119

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0443-07
Sampled:	12/10/18 14:20	Prepared:	12/15/18 14:20
Solids:	83.91	Preparation:	3550_B
Initial/Final:	50.067 g / 2 ml	Analyzed:	12/18/18 20:12
Batch:	B8L0502	Sequence:	S8L0259
		Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
103-33-3	Azobenzene as 1,2-Diphenylhydrazine		27.2	95.2	190	U
92-87-5	Benzidine		395	9520	22200	U
65-85-0	Benzoic acid		947	5710	9520	U
100-51-6	Benzyl alcohol		36.7	95.2	190	U
111-91-1	Bis(2-chloroethoxy)methane		41.7	95.2	190	U
111-44-4	Bis(2-chloroethyl)ether		505	1430	2860	U
108-60-1	Bis(2-chloroisopropyl)ether		643	1900	3810	U
86-74-8	Carbazole		32.1	95.2	190	U
132-64-9	Dibenzofuran		42.6	95.2	190	U
84-66-2	Diethyl phthalate		27.8	95.2	190	U
131-11-3	Dimethyl phthalate		17.5	47.6	95.2	U
84-74-2	Di-n-butyl phthalate		35.3	95.2	190	U
206-44-0	Fluoranthene		26.2	95.2	190	U
86-73-7	Fluorene		37.5	95.2	190	U
118-74-1	Hexachlorobenzene		36.7	95.2	190	U
87-68-3	Hexachlorobutadiene		58.6	190	381	U
77-47-4	Hexachlorocyclopentadiene		716	1900	3810	U
67-72-1	Hexachloroethane		52.2	190	381	U
78-59-1	Isophorone		227	571	1140	U
91-20-3	Naphthalene		52.4	190	381	U
98-95-3	Nitrobenzene		49.4	190	381	U
62-75-9	N-Nitrosodimethylamine		72.1	190	381	U
621-64-7	N-Nitrosodi-n-propylamine		89.3	286	571	U
86-30-6	N-Nitrosodiphenylamine		27.0	95.2	190	U
87-86-5	Pentachlorophenol		512	1430	2860	U
85-01-8	Phenanthrene		41.8	95.2	190	U
108-95-2	Phenol		52.6	190	381	U

Italicized = secondary result

*Handwritten signature*

# 1 - FORM I

## ANALYSIS DATA SHEET

18111119

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0443-07RE1
		File ID:	S18L19005.D
Sampled:	12/10/18 14:20	Prepared:	12/15/18 14:20
		Analyzed:	12/19/18 11:56
Solids:	83.91	Preparation:	3550_B
		Dilution:	25
Initial/Final:	50.067 g / 2 ml		
Batch:	B8L0502	Sequence:	S8L0277
		Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
91-94-1	3,3'-Dichlorobenzidine		907	1900	3810	U
56-55-3	Benzo(a)anthracene		65.6	238	476	U
50-32-8	Benzo(a)pyrene		292	1900	3810	U JK
205-99-2	Benzo(b)fluoranthene		148	1900	3810	U JK
191-24-2	Benzo(g,h,i)perylene		212	952	1900	U JK
207-08-9	Benzo(k)fluoranthene		232	952	1900	U JK
117-81-7	Bis(2-ethylhexyl)phthalate		399	1430	2860	U
85-68-7	Butyl benzyl phthalate		394	1430	2860	U
218-01-9	Chrysene		152	476	952	U
53-70-3	Dibenzo(a,h)anthracene		142	1900	3810	U JK
117-84-0	Di-n-octyl phthalate		718	1900	3810	U JK
193-39-5	Indeno(1,2,3-cd)pyrene		151	1900	3810	U JK
129-00-0	Pyrene		67.4	238	476	U

Italicized = secondary result

*MW H-19*

# 1 - FORM I

## ANALYSIS DATA SHEET

18111120

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0443-08
		File ID:	S18L18012.D
Sampled:	12/10/18 15:00	Prepared:	12/15/18 14:20
		Analyzed:	12/18/18 20:45
Solids:	89.88	Preparation:	3550_B
		Dilution:	5
Initial/Final:	49.9846 g / 2 ml		
Batch:	B8L0502	Sequence:	S8L0259
		Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
120-82-1	1,2,4-Trichlorobenzene		52.0	178	356	U
95-50-1	1,2-Dichlorobenzene		59.7	178	356	U
541-73-1	1,3-Dichlorobenzene		52.2	178	356	U
106-46-7	1,4-Dichlorobenzene		68.0	178	356	U
95-95-4	2,4,5-Trichlorophenol		31.6	89.0	178	U
88-06-2	2,4,6-Trichlorophenol		22.8	89.0	178	U
120-83-2	2,4-Dichlorophenol		28.5	89.0	178	U
105-67-9	2,4-Dimethylphenol		36.7	89.0	178	U
51-28-5	2,4-Dinitrophenol		878	2670	5340	U
121-14-2	2,4-Dinitrotoluene		58.7	712	1070	U
606-20-2	2,6-Dinitrotoluene		31.7	356	712	U
91-58-7	2-Chloronaphthalene		37.8	89.0	178	U
95-57-8	2-Chlorophenol		39.7	89.0	178	U
91-57-6	2-Methylnaphthalene	40.1	34.4	89.0	178	U
95-48-7	2-Methylphenol		20.5	44.5	89.0	U
88-74-4	2-Nitroaniline		24.0	89.0	178	U
88-75-5	2-Nitrophenol		27.9	356	712	U
84989-04-8	3 & 4-Methylphenol		69.5	178	356	U
99-09-2	3-Nitroaniline		43.1	134	267	U
534-52-1	4,6-Dinitro-2-methylphenol		426	1340	2670	U
101-55-3	4-Bromophenyl-phenylether		47.2	134	267	U
59-50-7	4-Chloro-3-methylphenol		24.4	89.0	178	U
106-47-8	4-Chloroaniline		42.8	134	267	U
7005-72-3	4-Chlorophenyl-phenylether		45.1	134	267	U
100-01-6	4-Nitroaniline	256	35.3	178	356	U
100-02-7	4-Nitrophenol		576	1780	3560	U
83-32-9	Acenaphthene		35.7	89.0	178	U
208-96-8	Acenaphthylene		23.6	89.0	178	U
120-12-7	Anthracene		18.6			U

MW 1-29-19

# 1 - FORM I ANALYSIS DATA SHEET

18111120

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0443-08
		File ID:	S18L18012.D
Sampled:	12/10/18 15:00	Prepared:	12/15/18 14:20
		Analyzed:	12/18/18 20:45
Solids:	89.88	Preparation:	3550_B
		Dilution:	5
Initial/Final:	49.9846 g / 2 ml		
Batch:	B8L0502	Sequence:	S8L0259
		Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
103-33-3	Azobenzene as 1,2-Diphenylhydrazine		25.5	89.0	178	U
92-87-5	Benzidine		369	8900	20800	U
65-85-0	Benzoic acid		885	5340	8900	U
100-51-6	Benzyl alcohol		34.3	89.0	178	U
111-91-1	Bis(2-chloroethoxy)methane		39.0	89.0	178	U
111-44-4	Bis(2-chloroethyl)ether		472	1340	2670	U
108-60-1	Bis(2-chloroisopropyl)ether		601	1780	3560	U
86-74-8	Carbazole		30.0	89.0	178	U
132-64-9	Dibenzofuran		39.9	89.0	178	U
84-66-2	Diethyl phthalate		26.0	89.0	178	U
131-11-3	Dimethyl phthalate		16.3	44.5	89.0	U
84-74-2	Di-n-butyl phthalate	2540	33.0	89.0	178	<i>U</i>
206-44-0	Fluoranthene		24.5	89.0	178	U
86-73-7	Fluorene		35.1	89.0	178	U
118-74-1	Hexachlorobenzene		34.3	89.0	178	U
87-68-3	Hexachlorobutadiene		54.8	178	356	U
77-47-4	Hexachlorocyclopentadiene		670	1780	3560	U
67-72-1	Hexachloroethane		48.8	178	356	U
78-59-1	Isophorone		212	534	1070	U
91-20-3	Naphthalene		49.0	178	356	U
98-95-3	Nitrobenzene		46.2	178	356	U
62-75-9	N-Nitrosodimethylamine		67.4	178	356	U
621-64-7	N-Nitrosodi-n-propylamine		83.5	267	534	U
86-30-6	N-Nitrosodiphenylamine		25.3	89.0	178	U
87-86-5	Pentachlorophenol		479	1340	2670	U
85-01-8	Phenanthrene		39.1	89.0	178	U
108-95-2	Phenol		49.2	178	356	U

Italicized = secondary result

*MW 12849*



# 1 - FORM I

## ANALYSIS DATA SHEET

18111120

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0443-08RE1
		File ID:	S18L19007.D
Sampled:	12/10/18 15:00	Prepared:	12/15/18 14:20
		Analyzed:	12/19/18 13:11
Solids:	89.88	Preparation:	3550_B
		Dilution:	25
Initial/Final:	49.9846 g / 2 ml		
Batch:	B8L0502	Sequence:	S8L0277
		Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
91-94-1	3,3'-Dichlorobenzidine		848	1780	3560	U
56-55-3	Benzo(a)anthracene		61.3	223	445	U
50-32-8	Benzo(a)pyrene		273	1780	3560	U JK
205-99-2	Benzo(b)fluoranthene		139	1780	3560	U JK
191-24-2	Benzo(g,h,i)perylene		198	890	1780	U JK
207-08-9	Benzo(k)fluoranthene		217	890	1780	U JK
117-81-7	Bis(2-ethylhexyl)phthalate	<del>1270</del> MW	374	1340	2670	U-D, JK
85-68-7	Butyl benzyl phthalate		369	1340	2670	U
218-01-9	Chrysene		142	445	890	U
53-70-3	Dibenzo(a,h)anthracene		133	1780	3560	U JK
117-84-0	Di-n-octyl phthalate		672	1780	3560	U JK
193-39-5	Indeno(1,2,3-cd)pyrene		141	1780	3560	U JK
129-00-0	Pyrene	289	63.1	223	445	U JK

Italicized = secondary result

MW 1-29-19

# 1 - FORM I

## ANALYSIS DATA SHEET

18111121

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0443-09
		File ID:	S18L18019.D
Sampled:	12/10/18 15:50	Prepared:	12/15/18 14:20
		Analyzed:	12/19/18 00:40
Solids:	80.80	Preparation:	3550_B
		Dilution:	5
Initial/Final:	50.0753 g / 10 ml		
Batch:	B8L0502	Sequence:	S8L0259
		Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
120-82-1	1,2,4-Trichlorobenzene		289	989	1980	U
95-50-1	1,2-Dichlorobenzene		331	989	1980	U
541-73-1	1,3-Dichlorobenzene		290	989	1980	U
106-46-7	1,4-Dichlorobenzene		378	989	1980	U
95-95-4	2,4,5-Trichlorophenol		176	494	989	U
88-06-2	2,4,6-Trichlorophenol		127	494	989	U
120-83-2	2,4-Dichlorophenol		158	494	989	U
105-67-9	2,4-Dimethylphenol		204	494	989	U
51-28-5	2,4-Dinitrophenol		4870	14800	29700	U
121-14-2	2,4-Dinitrotoluene		326	3950	5930	U
606-20-2	2,6-Dinitrotoluene		176	1980	3950	U
91-58-7	2-Chloronaphthalene		210	494	989	U
95-57-8	2-Chlorophenol		221	494	989	U
91-57-6	2-Methylnaphthalene		191	494	989	U
95-48-7	2-Methylphenol	148	114	247	494	J. P. Q
88-74-4	2-Nitroaniline		133	494	989	U
88-75-5	2-Nitrophenol		155	1980	3950	U
84989-04-8	3 & 4-Methylphenol		386	989	1980	U
99-09-2	3-Nitroaniline		239	741	1480	U
534-52-1	4,6-Dinitro-2-methylphenol		2360	7410	14800	U
101-55-3	4-Bromophenyl-phenylether		262	741	1480	U
59-50-7	4-Chloro-3-methylphenol		136	494	989	U
106-47-8	4-Chloroaniline		238	741	1480	U
7005-72-3	4-Chlorophenyl-phenylether		251	741	1480	U
100-01-6	4-Nitroaniline		196	989	1980	U
100-02-7	4-Nitrophenol		3200	9890	19800	U
83-32-9	Acenaphthene		198	494	989	U
208-96-8	Acenaphthylene		131	494	989	U
120-12-7	Anthracene		103	247	494	U

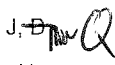
*MW Hoya*

# 1 - FORM I

## ANALYSIS DATA SHEET

18111121

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0443-09
Sampled:	12/10/18 15:50	Prepared:	12/15/18 14:20
Solids:	80.80	Preparation:	3550_B
Initial/Final:	50.0753 g / 10 ml	Analyzed:	12/19/18 00:40
Batch:	B8L0502	Sequence:	S8L0259
		Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
103-33-3	Azobenzene as 1,2-Diphenylhydrazine		141	494	989	U
92-87-5	Benzidine		2050	49400	115000	U
65-85-0	Benzoic acid		4910	29700	49400	U
100-51-6	Benzyl alcohol	297	190	494	989	J-D 
111-91-1	Bis(2-chloroethoxy)methane		216	494	989	U
111-44-4	Bis(2-chloroethyl)ether		2620	7410	14800	U
108-60-1	Bis(2-chloroisopropyl)ether		3340	9890	19800	U
86-74-8	Carbazole		167	494	989	U
132-64-9	Dibenzofuran		221	494	989	U
84-66-2	Diethyl phthalate		145	494	989	U
131-11-3	Dimethyl phthalate		90.7	247	494	U
84-74-2	Di-n-butyl phthalate		183	494	989	U
206-44-0	Fluoranthene		136	494	989	U
86-73-7	Fluorene		195	494	989	U
118-74-1	Hexachlorobenzene		190	494	989	U
87-68-3	Hexachlorobutadiene		304	989	1980	U
77-47-4	Hexachlorocyclopentadiene		3720	9890	19800	U
67-72-1	Hexachloroethane		271	989	1980	U
78-59-1	Isophorone		1180	2970	5930	U
91-20-3	Naphthalene		272	989	1980	U
98-95-3	Nitrobenzene		256	989	1980	U
62-75-9	N-Nitrosodimethylamine		374	989	1980	U
621-64-7	N-Nitrosodi-n-propylamine		464	1480	2970	U
86-30-6	N-Nitrosodiphenylamine		140	494	989	U
87-86-5	Pentachlorophenol		2660	7410	14800	U
85-01-8	Phenanthrene		217	494	989	U
108-95-2	Phenol		273	989	1980	U

Italicized = secondary result



# 1 - FORM I

## ANALYSIS DATA SHEET

18111121

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0443-09RE1
		File ID:	S18L19011.D
Sampled:	12/10/18 15:50	Prepared:	12/15/18 14:20
		Analyzed:	12/19/18 15:38
Solids:	80.80	Preparation:	3550_B
		Dilution:	25
Initial/Final:	50.0753 g / 10 ml		
Batch:	B8L0502	Sequence:	S8L0277
		Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
91-94-1	3,3'-Dichlorobenzidine		4710	9890	19800	U
56-55-3	Benzo(a)anthracene		340	1240	2470	U
50-32-8	Benzo(a)pyrene		1510	9890	19800	U JK
205-99-2	Benzo(b)fluoranthene		771	9890	19800	U JK
191-24-2	Benzo(g,h,i)perylene		1100	4940	9890	U JK
207-08-9	Benzo(k)fluoranthene		1210	4940	9890	U JK
117-81-7	Bis(2-ethylhexyl)phthalate	<del>4450</del> <i>mu</i>	2070	7410	14800	U <del>J.D.B.</del> <i>mu</i>
85-68-7	Butyl benzyl phthalate		2050	7410	14800	U
218-01-9	Chrysene		787	2470	4940	U
53-70-3	Dibenzo(a,h)anthracene		737	9890	19800	U JK
117-84-0	Di-n-octyl phthalate		3730	9890	19800	U JK
193-39-5	Indeno(1,2,3-cd)pyrene		784	9890	19800	U JK
129-00-0	Pyrene		350	1240	2470	U

Italicized = secondary result

*mu Ho (9)*

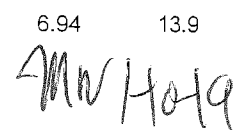

# 1 - FORM I

## ANALYSIS DATA SHEET

18111122

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0443-01
		File ID:	S18L17022.D
Sampled:	12/11/18 09:40	Prepared:	12/15/18 14:20
		Analyzed:	12/18/18 01:28
Solids:	57.73	Preparation:	3550_B
		Dilution:	1
Initial/Final:	49.9491 g / 1 ml		
Batch:	B8L0502	Sequence:	S8L0238
		Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
120-82-1	1,2,4-Trichlorobenzene		8.10	27.7	55.5	U
95-50-1	1,2-Dichlorobenzene		9.30	27.7	55.5	U
541-73-1	1,3-Dichlorobenzene		8.13	27.7	55.5	U
106-46-7	1,4-Dichlorobenzene		10.6	27.7	55.5	U
95-95-4	2,4,5-Trichlorophenol		4.93	13.9	27.7	U
88-06-2	2,4,6-Trichlorophenol		3.55	13.9	27.7	U
120-83-2	2,4-Dichlorophenol		4.44	13.9	27.7	U
105-67-9	2,4-Dimethylphenol		5.72	13.9	27.7	U
51-28-5	2,4-Dinitrophenol		137	416	832	U
121-14-2	2,4-Dinitrotoluene		9.15	111	166	U
606-20-2	2,6-Dinitrotoluene		4.94	55.5	111	U
91-58-7	2-Chloronaphthalene		5.89	13.9	27.7	U
95-57-8	2-Chlorophenol		6.19	13.9	27.7	U
91-57-6	2-Methylnaphthalene		5.37	13.9	27.7	U
95-48-7	2-Methylphenol		3.19	6.94	13.9	U
88-74-4	2-Nitroaniline		3.73	13.9	27.7	U
88-75-5	2-Nitrophenol		4.34	55.5	111	U
84989-04-8	3 & 4-Methylphenol		10.8	27.7	55.5	U
99-09-2	3-Nitroaniline		6.72	20.8	41.6	U
534-52-1	4,6-Dinitro-2-methylphenol		66.3	208	416	U
101-55-3	4-Bromophenyl-phenylether		7.35	20.8	41.6	U
59-50-7	4-Chloro-3-methylphenol		3.81	13.9	27.7	U
106-47-8	4-Chloroaniline		6.67	20.8	41.6	U
7005-72-3	4-Chlorophenyl-phenylether		7.03	20.8	41.6	U
100-01-6	4-Nitroaniline		5.51	27.7	55.5	U
100-02-7	4-Nitrophenol		89.7	277	555	U
83-32-9	Acenaphthene		5.57	13.9	27.7	U
208-96-8	Acenaphthylene		3.68	13.9	27.7	U
120-12-7	Anthracene	4.86	2.89	6.94	13.9	U

# 1 - FORM I ANALYSIS DATA SHEET

18111122

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0443-01
		File ID:	S18L17022.D
Sampled:	12/11/18 09:40	Prepared:	12/15/18 14:20
		Analyzed:	12/18/18 01:28
Solids:	57.73	Preparation:	3550_B
		Dilution:	1
Initial/Final:	49.9491 g / 1 ml		
Batch:	B8L0502	Sequence:	S8L0238
		Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
103-33-3	Azobenzene as 1,2-Diphenylhydrazine		3.97	13.9	27.7	U
92-87-5	Benzidine		57.5	1390	3240	U
<del>205-99-2</del>	<del>Benzo(b)fluoranthene</del>		<del>4.33</del>	<del>55.5</del>	<del>111</del>	<del>U</del> <i>MR</i>
<del>191-24-2</del>	<del>Benzo(g,h,i)perylene</del>		<del>6.17</del>	<del>27.7</del>	<del>55.5</del>	<del>U</del> <i>MR</i>
65-85-0	Benzoic acid		138	832	1390	U
100-51-6	Benzyl alcohol		5.34	13.9	27.7	U
111-91-1	Bis(2-chloroethoxy)methane		6.07	13.9	27.7	U
111-44-4	Bis(2-chloroethyl)ether		73.5	208	416	U
108-60-1	Bis(2-chloroisopropyl)ether		93.6	277	555	U
<del>85-68-7</del>	<del>Butyl benzyl phthalate</del>	<del>48.2</del>	<del>11.5</del>	<del>41.6</del>	<del>83.2</del>	<del>U</del> <i>Q MR</i>
86-74-8	Carbazole		4.67	13.9	27.7	U
132-64-9	Dibenzofuran		6.21	13.9	27.7	U
84-66-2	Diethyl phthalate		4.06	13.9	27.7	U
131-11-3	Dimethyl phthalate		2.54	6.94	13.9	U
84-74-2	Di-n-butyl phthalate	34.3	5.15	13.9	27.7	
<del>117-84-0</del>	<del>Di-n-octyl phthalate</del>		<del>20.9</del>	<del>55.5</del>	<del>111</del>	<del>U</del> <i>MR</i>
206-44-0	Fluoranthene	22.2	3.81	13.9	27.7	J <i>Q</i>
86-73-7	Fluorene		5.46	13.9	27.7	U
118-74-1	Hexachlorobenzene		5.34	13.9	27.7	U
87-68-3	Hexachlorobutadiene		8.54	27.7	55.5	U
77-47-4	Hexachlorocyclopentadiene		104	277	555	U
67-72-1	Hexachloroethane		7.61	27.7	55.5	U
78-59-1	Isophorone		33.0	83.2	166	U
91-20-3	Naphthalene		7.63	27.7	55.5	U
98-95-3	Nitrobenzene		7.20	27.7	55.5	U
62-75-9	N-Nitrosodimethylamine		10.5	27.7	55.5	U
621-64-7	N-Nitrosodi-n-propylamine		13.0	41.6	83.2	U
86-30-6	N-Nitrosodiphenylamine		3.94	13.9	27.7	U
87-86-5	Pentachlorophenol		74.7	208	416	U

*mw Holo*

# 1 - FORM I

## ANALYSIS DATA SHEET

18111122

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0443-01
		File ID:	S18L17022.D
Sampled:	12/11/18 09:40	Prepared:	12/15/18 14:20
		Analyzed:	12/18/18 01:28
Solids:	57.73	Preparation:	3550_B
		Dilution:	1
Initial/Final:	49.9491 g / 1 ml		
Batch:	B8L0502	Sequence:	S8L0238
		Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
85-01-8	Phenanthrene	9.71	6.10	13.9	27.7	J Q
108-95-2	Phenol		7.66	27.7	55.5	U

Italicized = secondary result

*MW/Ho19*

# 1 - FORM I

## ANALYSIS DATA SHEET

18111122

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0443-01RE1
		File ID:	S18L18005.D
Sampled:	12/11/18 09:40	Prepared:	12/15/18 14:20
		Analyzed:	12/18/18 16:44
Solids:	57.73	Preparation:	3550_B
		Dilution:	10
Initial/Final:	49.9491 g / 1 ml		
Batch:	B8L0502	Sequence:	S8L0259
		Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
91-94-1	3,3'-Dichlorobenzidine		264	555	1110	U
56-55-3	Benzo(a)anthracene		19.1	69.4	139	U
50-32-8	Benzo(a)pyrene		85.0	555	1110	U
205-99-2	Benzo(b)fluoranthene		43.3	555	1110	U
191-24-2	Benzo(g,h,i)perylene		61.7	277	555	U
207-08-9	Benzo(k)fluoranthene		67.7	277	555	U
117-81-7	Bis(2-ethylhexyl)phthalate	253 <i>mu</i>	116	416	832	<i>U, B, B, Q</i>
85-68-7	Butyl benzyl phthalate		115	416	832	U
218-01-9	Chrysene		44.2	139	277	U
53-70-3	Dibenzo(a,h)anthracene		41.3	555	1110	U
117-84-0	Di-n-octyl phthalate		209	555	1110	U
193-39-5	Indeno(1,2,3-cd)pyrene		44.0	555	1110	U
129-00-0	Pyrene	79.8	19.7	69.4	139	<i>J, B, Q</i>

Italicized = secondary result

*mw / 10-19*



# 1 - FORM I

## ANALYSIS DATA SHEET

18111123

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0443-02
		File ID:	S18L18014.D
Sampled:	12/11/18 09:50	Prepared:	12/15/18 14:20
		Analyzed:	12/18/18 21:53
Solids:	54.82	Preparation:	3550_B
		Dilution:	1
Initial/Final:	50.1313 g / 2 ml		
Batch:	B8L0502	Sequence:	S8L0259
		Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
120-82-1	1,2,4-Trichlorobenzene		17.0	58.2	116	U
95-50-1	1,2-Dichlorobenzene		19.5	58.2	116	U
541-73-1	1,3-Dichlorobenzene		17.1	58.2	116	U
106-46-7	1,4-Dichlorobenzene		22.3	58.2	116	U
95-95-4	2,4,5-Trichlorophenol		10.3	29.1	58.2	U
88-06-2	2,4,6-Trichlorophenol		7.45	29.1	58.2	U
120-83-2	2,4-Dichlorophenol		9.31	29.1	58.2	U
105-67-9	2,4-Dimethylphenol		12.0	29.1	58.2	U
51-28-5	2,4-Dinitrophenol		287	873	1750	U
121-14-2	2,4-Dinitrotoluene		19.2	233	349	U
606-20-2	2,6-Dinitrotoluene		10.4	116	233	U
91-58-7	2-Chloronaphthalene		12.4	29.1	58.2	U
95-57-8	2-Chlorophenol		13.0	29.1	58.2	U
91-57-6	2-Methylnaphthalene	1560	11.3	29.1	58.2	
95-48-7	2-Methylphenol		6.69	14.6	29.1	U
88-74-4	2-Nitroaniline		7.84	29.1	58.2	U
88-75-5	2-Nitrophenol		9.11	116	233	U
84989-04-8	3 & 4-Methylphenol		22.7	58.2	116	U
99-09-2	3-Nitroaniline		14.1	43.7	87.3	U
534-52-1	4,6-Dinitro-2-methylphenol		139	437	873	U
101-55-3	4-Bromophenyl-phenylether		15.4	43.7	87.3	U
59-50-7	4-Chloro-3-methylphenol		7.99	29.1	58.2	U
106-47-8	4-Chloroaniline		14.0	43.7	87.3	U
7005-72-3	4-Chlorophenyl-phenylether		14.8	43.7	87.3	U
100-01-6	4-Nitroaniline		11.6	58.2	116	U
100-02-7	4-Nitrophenol		188	582	1160	U
83-32-9	Acenaphthene	136	11.7	29.1	58.2	
208-96-8	Acenaphthylene		7.72	29.1	58.2	U
120-12-7	Anthracene		6.07	14.6	29.1	U

*MW H-19*

# 1 - FORM I

## ANALYSIS DATA SHEET

18111123

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0443-02
		File ID:	S18L18014.D
Sampled:	12/11/18 09:50	Prepared:	12/15/18 14:20
		Analyzed:	12/18/18 21:53
Solids:	54.82	Preparation:	3550_B
		Dilution:	1
Initial/Final:	50.1313 g / 2 ml		
Batch:	B8L0502	Sequence:	S8L0259
		Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
103-33-3	Azobenzene as 1,2-Diphenylhydrazine		8.32	29.1	58.2	U
92-87-5	Benzidine		121	2910	6790	U
65-85-0	Benzoic acid		289	1750	2910	U
100-51-6	Benzyl alcohol		11.2	29.1	58.2	U
111-91-1	Bis(2-chloroethoxy)methane		12.7	29.1	58.2	U
111-44-4	Bis(2-chloroethyl)ether		154	437	873	U
108-60-1	Bis(2-chloroisopropyl)ether		196	582	1160	U
86-74-8	Carbazole		9.81	29.1	58.2	U
218-01-9	Chrysene	209	9.27	29.1	58.2	
132-64-9	Dibenzofuran		13.0	29.1	58.2	U
84-66-2	Diethyl phthalate		8.51	29.1	58.2	U
131-11-3	Dimethyl phthalate		5.34	14.6	29.1	U
84-74-2	Di-n-butyl phthalate		10.8	29.1	58.2	U
117-84-0	Di-n-octyl phthalate		43.9	116	233	U
206-44-0	Fluoranthene	184	8.00	29.1	58.2	
86-73-7	Fluorene	153	11.5	29.1	58.2	
118-74-1	Hexachlorobenzene		11.2	29.1	58.2	U
87-68-3	Hexachlorobutadiene		17.9	58.2	116	U
77-47-4	Hexachlorocyclopentadiene		219	582	1160	U
67-72-1	Hexachloroethane		16.0	58.2	116	U
78-59-1	Isophorone		69.3	175	349	U
91-20-3	Naphthalene	561	16.0	58.2	116	
98-95-3	Nitrobenzene		15.1	58.2	116	U
62-75-9	N-Nitrosodimethylamine		22.0	58.2	116	U
621-64-7	N-Nitrosodi-n-propylamine		27.3	87.3	175	U
86-30-6	N-Nitrosodiphenylamine		8.27	29.1	58.2	U
87-86-5	Pentachlorophenol		157	437	873	U
85-01-8	Phenanthrene	379	12.8	29.1	58.2	
108-95-2	Phenol		16.1	58.2	116	U

*Mw Ho-fa*

# 1 - FORM I ANALYSIS DATA SHEET

18111123

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0443-02RE1
		File ID:	S18L18006.D
Sampled:	12/11/18 09:50	Prepared:	12/15/18 14:20
		Analyzed:	12/18/18 17:20
Solids:	54.82	Preparation:	3550_B
		Dilution:	5
Initial/Final:	50.1313 g / 2 ml		
Batch:	B8L0502	Sequence:	S8L0259
		Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
91-94-1	3,3'-Dichlorobenzidine		277	582	1160	U
<del>100-02-7</del>	<del>4-Nitrophenol</del>		<del>942</del>	<del>2910</del>	<del>5820</del>	<del>U</del> <i>me R</i>
56-55-3	Benzo(a)anthracene		20.0	72.8	146	U
117-81-7	Bis(2-ethylhexyl)phthalate	4380	122	437	873	<del>D, B</del> <i>me</i>
85-68-7	Butyl benzyl phthalate	1050	121	437	873	D
129-00-0	Pyrene	659	20.6	72.8	146	D <i>me</i>

Italicized = secondary result

*Mw 1419*

# 1 - FORM I ANALYSIS DATA SHEET

18111123

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0443-02RE2
		File ID:	S18L19004.D
Sampled:	12/11/18 09:50	Prepared:	12/15/18 14:20
		Analyzed:	12/19/18 11:19
Solids:	54.82	Preparation:	3550_B
		Dilution:	25
Initial/Final:	50.1313 g / 2 ml		
Batch:	B8L0502	Sequence:	S8L0277
		Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
<del>420-82-1</del>	<del>1,2,4-Trichlorobenzene</del>	<del>425</del>	<del>1460</del>	<del>2910</del>	<del>U</del>	<del>mu</del>
50-32-8	Benzo(a)pyrene	446	2910	5820	U	
205-99-2	Benzo(b)fluoranthene	227	2910	5820	U	
191-24-2	Benzo(g,h,i)perylene	323	1460	2910	U	
207-08-9	Benzo(k)fluoranthene	355	1460	2910	U	
53-70-3	Dibenzo(a,h)anthracene	217	2910	5820	U	
117-84-0	Di-n-octyl phthalate	1100	2910	5820	U	
193-39-5	Indeno(1,2,3-cd)pyrene	231	2910	5820	U	

Italicized = secondary result

*Mw/Hofg*

# 1 - FORM I

## ANALYSIS DATA SHEET

18111124

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0443-03
		File ID:	S18L18015.D
Sampled:	12/11/18 11:30	Prepared:	12/15/18 14:20
		Analyzed:	12/18/18 22:26
Solids:	67.31	Preparation:	3550_B
		Dilution:	1
Initial/Final:	39.9515 g / 2 ml		
Batch:	B8L0502	Sequence:	S8L0259
		Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
120-82-1	1,2,4-Trichlorobenzene		17.4	59.5	119	U
95-50-1	1,2-Dichlorobenzene		19.9	59.5	119	U
541-73-1	1,3-Dichlorobenzene		17.4	59.5	119	U
106-46-7	1,4-Dichlorobenzene		22.7	59.5	119	U
95-95-4	2,4,5-Trichlorophenol		10.6	29.7	59.5	U
88-06-2	2,4,6-Trichlorophenol		7.62	29.7	59.5	U
120-83-2	2,4-Dichlorophenol		9.52	29.7	59.5	U
105-67-9	2,4-Dimethylphenol		12.3	29.7	59.5	U
51-28-5	2,4-Dinitrophenol		293	892	1780	U
121-14-2	2,4-Dinitrotoluene		19.6	238	357	U
606-20-2	2,6-Dinitrotoluene		10.6	119	238	U
91-58-7	2-Chloronaphthalene		12.6	29.7	59.5	U
95-57-8	2-Chlorophenol		13.3	29.7	59.5	U
91-57-6	2-Methylnaphthalene		11.5	29.7	59.5	U
95-48-7	2-Methylphenol		6.83	14.9	29.7	U
88-74-4	2-Nitroaniline		8.01	29.7	59.5	U
88-75-5	2-Nitrophenol		9.31	119	238	U
84989-04-8	3 & 4-Methylphenol		23.2	59.5	119	U
99-09-2	3-Nitroaniline		14.4	44.6	89.2	U
534-52-1	4,6-Dinitro-2-methylphenol		142	446	892	U
101-55-3	4-Bromophenyl-phenylether		15.8	44.6	89.2	U
59-50-7	4-Chloro-3-methylphenol		8.16	29.7	59.5	U
106-47-8	4-Chloroaniline		14.3	44.6	89.2	U
7005-72-3	4-Chlorophenyl-phenylether		15.1	44.6	89.2	U
100-01-6	4-Nitroaniline		11.8	59.5	119	U
100-02-7	4-Nitrophenol		192	595	1190	U
83-32-9	Acenaphthene	17.8	11.9	29.7	59.5	JQ
208-96-8	Acenaphthylene		7.89	29.7	59.5	U
120-12-7	Anthracene	55.8	6.21	14.9	29.7	

*John Hottel*

# 1 - FORM I

## ANALYSIS DATA SHEET

18111124

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0443-03
		File ID:	S18L18015.D
Sampled:	12/11/18 11:30	Prepared:	12/15/18 14:20
		Analyzed:	12/18/18 22:26
Solids:	67.31	Preparation:	3550_B
		Dilution:	1
Initial/Final:	39.9515 g / 2 ml		
Batch:	B8L0502	Sequence:	S8L0259
		Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
103-33-3	Azobenzene as 1,2-Diphenylhydrazine		8.50	29.7	59.5	U
92-87-5	Benzidine		123	2970	6940	U
65-85-0	Benzoic acid		296	1780	2970	U
100-51-6	Benzyl alcohol		11.5	29.7	59.5	U
111-91-1	Bis(2-chloroethoxy)methane		13.0	29.7	59.5	U
111-44-4	Bis(2-chloroethyl)ether		158	446	892	U
108-60-1	Bis(2-chloroisopropyl)ether		201	595	1190	U
86-74-8	Carbazole	26.0	10.0	29.7	59.5	J Q
132-64-9	Dibenzofuran	18.6	13.3	29.7	59.5	J Q
84-66-2	Diethyl phthalate		8.70	29.7	59.5	U
131-11-3	Dimethyl phthalate		5.46	14.9	29.7	U
84-74-2	Di-n-butyl phthalate		11.0	29.7	59.5	U
206-44-0	Fluoranthene	194	8.18	29.7	59.5	
86-73-7	Fluorene		11.7	29.7	59.5	U
118-74-1	Hexachlorobenzene		11.5	29.7	59.5	U
87-68-3	Hexachlorobutadiene		18.3	59.5	119	U
77-47-4	Hexachlorocyclopentadiene		224	595	1190	U
67-72-1	Hexachloroethane		16.3	59.5	119	U
78-59-1	Isophorone		70.8	178	357	U
91-20-3	Naphthalene		16.4	59.5	119	U
98-95-3	Nitrobenzene		15.4	59.5	119	U
62-75-9	N-Nitrosodimethylamine		22.5	59.5	119	U
621-64-7	N-Nitrosodi-n-propylamine		27.9	89.2	178	U
86-30-6	N-Nitrosodiphenylamine		8.45	29.7	59.5	U
87-86-5	Pentachlorophenol		160	446	892	U
85-01-8	Phenanthrene	213	13.1	29.7	59.5	
108-95-2	Phenol		16.4	59.5	119	U

Italicized = secondary result

*MW Holz*

# 1 - FORM I ANALYSIS DATA SHEET

18111124

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0443-03RE1
		File ID:	S18L18007.D
Sampled:	12/11/18 11:30	Prepared:	12/15/18 14:20
		Analyzed:	12/18/18 17:56
Solids:	67.31	Preparation:	3550_B
		Dilution:	5
Initial/Final:	39.9515 g / 2 ml		
Batch:	B8L0502	Sequence:	S8L0259
		Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
91-94-1	3,3'-Dichlorobenzidine		283	595	1190	U
56-55-3	Benzo(a)anthracene	212	20.5	74.4	149	<i>DMW</i>
117-81-7	Bis(2-ethylhexyl)phthalate	<del>692</del> <i>Mr</i>	125	446	892	<i>U, D, B, Q</i>
85-68-7	Butyl benzyl phthalate	495	123	446	892	<i>J, D, Q</i>
218-01-9	Chrysene	312	47.4	149	297	<i>D</i>
129-00-0	Pyrene	606	21.1	74.4	149	<i>D</i>

Italicized = secondary result

*DMW 10/19*

# 1 - FORM I

## ANALYSIS DATA SHEET

18111124

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0443-03RE2
		File ID:	S18L19006.D
Sampled:	12/11/18 11:30	Prepared:	12/15/18 14:20
		Analyzed:	12/19/18 12:34
Solids:	67.31	Preparation:	3550_B
		Dilution:	25
Initial/Final:	39.9515 g / 2 ml		
Batch:	B8L0502	Sequence:	S8L0277
		Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
50-32-8	Benzo(a)pyrene		456	2970	5950	U JK
205-99-2	Benzo(b)fluoranthene		232	2970	5950	U JK
191-24-2	Benzo(g,h,i)perylene		331	1490	2970	U JK
207-08-9	Benzo(k)fluoranthene		363	1490	2970	U JK
53-70-3	Dibenzo(a,h)anthracene		222	2970	5950	U JK
117-84-0	Di-n-octyl phthalate		1120	2970	5950	U JK
193-39-5	Indeno(1,2,3-cd)pyrene		236	2970	5950	U JK

Italicized = secondary result

*Mw H019*



# 1 - FORM I

## ANALYSIS DATA SHEET

18111127

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0510-03
		File ID:	S18L20016.D
Sampled:	12/11/18 08:40	Prepared:	12/18/18 18:41
		Analyzed:	12/20/18 20:51
Solids:	87.09	Preparation:	3550_B
		Dilution:	25
Initial/Final:	40.0651 g / 1 ml		
Batch:	B8L0593	Sequence:	S8L0306
		Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
120-82-1	1,2,4-Trichlorobenzene		167	573	1150	U
95-50-1	1,2-Dichlorobenzene		192	573	1150	U
541-73-1	1,3-Dichlorobenzene		168	573	1150	U
106-46-7	1,4-Dichlorobenzene		219	573	1150	U
95-95-4	2,4,5-Trichlorophenol		102	287	573	U
88-06-2	2,4,6-Trichlorophenol		73.4	287	573	U
120-83-2	2,4-Dichlorophenol		91.7	287	573	U
105-67-9	2,4-Dimethylphenol		118	287	573	U
51-28-5	2,4-Dinitrophenol		2830	8600	17200	U
121-14-2	2,4-Dinitrotoluene		189	2290	3440	U
606-20-2	2,6-Dinitrotoluene		102	1150	2290	U
91-58-7	2-Chloronaphthalene		122	287	573	U
95-57-8	2-Chlorophenol		128	287	573	U
91-57-6	2-Methylnaphthalene		111	287	573	U
95-48-7	2-Methylphenol		65.8	143	287	U
88-74-4	2-Nitroaniline		77.2	287	573	U
88-75-5	2-Nitrophenol		89.7	1150	2290	U
91-94-1	3,3'-Dichlorobenzidine		546	1150	2290	U
84989-04-8	3 & 4-Methylphenol		224	573	1150	U
99-09-2	3-Nitroaniline		139	430	860	U
534-52-1	4,6-Dinitro-2-methylphenol		1370	4300	8600	U
101-55-3	4-Bromophenyl-phenylether		152	430	860	U
59-50-7	4-Chloro-3-methylphenol		78.6	287	573	U
106-47-8	4-Chloroaniline		138	430	860	U
7005-72-3	4-Chlorophenyl-phenylether		145	430	860	U
100-01-6	4-Nitroaniline		114	573	1150	U
100-02-7	4-Nitrophenol		1850	5730	11500	U
83-32-9	Acenaphthene		115	287	573	U
208-96-8	Acenaphthylene		76.0	287	573	U

*Mw Hoda*

# 1 - FORM I

## ANALYSIS DATA SHEET

18111127

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0510-03
		File ID:	S18L20016.D
Sampled:	12/11/18 08:40	Prepared:	12/18/18 18:41
		Analyzed:	12/20/18 20:51
Solids:	87.09	Preparation:	3550_B
		Dilution:	25
Initial/Final:	40.0651 g / 1 ml		
Batch:	B8L0593	Sequence:	S8L0306
		Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
120-12-7	Anthracene		59.8	143	287	U
103-33-3	Azobenzene as 1,2-Diphenylhydrazine		81.9	287	573	U
92-87-5	Benzidine		1190	28700	66900	U
56-55-3	Benzo(a)anthracene		39.5	143	287	U
50-32-8	Benzo(a)pyrene		176	1150	2290	U
205-99-2	Benzo(b)fluoranthene		89.4	1150	2290	U
191-24-2	Benzo(g,h,i)perylene		127	573	1150	U
207-08-9	Benzo(k)fluoranthene		140	573	1150	U
65-85-0	Benzoic acid		2850	17200	28700	U
100-51-6	Benzyl alcohol		110	287	573	U
111-91-1	Bis(2-chloroethoxy)methane		125	287	573	U
111-44-4	Bis(2-chloroethyl)ether		1520	4300	8600	U
108-60-1	Bis(2-chloroisopropyl)ether		1930	5730	11500	U
117-81-7	Bis(2-ethylhexyl)phthalate		240	860	1720	U
85-68-7	Butyl benzyl phthalate		237	860	1720	U
86-74-8	Carbazole		96.6	287	573	U
218-01-9	Chrysene		91.3	287	573	U
53-70-3	Dibenzo(a,h)anthracene		85.4	1150	2290	U
132-64-9	Dibenzofuran		128	287	573	U
84-66-2	Diethyl phthalate		83.8	287	573	U
131-11-3	Dimethyl phthalate		52.6	143	287	U
84-74-2	Di-n-butyl phthalate		106	287	573	U
117-84-0	Di-n-octyl phthalate		432	1150	2290	U
206-44-0	Fluoranthene		78.8	287	573	U
86-73-7	Fluorene		113	287	573	U
118-74-1	Hexachlorobenzene		110	287	573	U
87-68-3	Hexachlorobutadiene		176	573	1150	U
77-47-4	Hexachlorocyclopentadiene		2160	5730	11500	U
67-72-1	Hexachloroethane		157	573	1150	U

*M. H. 19*

# 1 - FORM I

## ANALYSIS DATA SHEET

18111127

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0510-03
		File ID:	S18L20016.D
Sampled:	12/11/18 08:40	Prepared:	12/18/18 18:41
		Analyzed:	12/20/18 20:51
Solids:	87.09	Preparation:	3550_B
		Dilution:	25
Initial/Final:	40.0651 g / 1 ml		
Batch:	B8L0593	Sequence:	S8L0306
		Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
193-39-5	Indeno(1,2,3-cd)pyrene		90.9	1150	2290	U
78-59-1	Isophorone		682	1720	3440	U
91-20-3	Naphthalene		158	573	1150	U
98-95-3	Nitrobenzene		149	573	1150	U
62-75-9	N-Nitrosodimethylamine		217	573	1150	U
621-64-7	N-Nitrosodi-n-propylamine		269	860	1720	U
86-30-6	N-Nitrosodiphenylamine		81.4	287	573	U
87-86-5	Pentachlorophenol		1540	4300	8600	U
85-01-8	Phenanthrene		126	287	573	U
108-95-2	Phenol		158	573	1150	U
129-00-0	Pyrene	129	40.6	143	287	U

Italicized = secondary result

J. P. Q

MW H-19

# 1 - FORM I

## ANALYSIS DATA SHEET

18111128

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0510-04
		File ID:	S18L20017.D
Sampled:	12/12/18 10:00	Prepared:	12/18/18 18:41
		Analyzed:	12/20/18 21:25
Solids:	90.25	Preparation:	3550_B
		Dilution:	25
Initial/Final:	40.1189 g / 1 ml		
Batch:	B8L0593	Sequence:	S8L0306
		Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
120-82-1	1,2,4-Trichlorobenzene		161	552	1100	U
95-50-1	1,2-Dichlorobenzene		185	552	1100	U
541-73-1	1,3-Dichlorobenzene		162	552	1100	U
106-46-7	1,4-Dichlorobenzene		211	552	1100	U
95-95-4	2,4,5-Trichlorophenol		98.1	276	552	U
88-06-2	2,4,6-Trichlorophenol		70.7	276	552	U
120-83-2	2,4-Dichlorophenol		88.4	276	552	U
105-67-9	2,4-Dimethylphenol		114	276	552	U
51-28-5	2,4-Dinitrophenol		2720	8290	16600	U
121-14-2	2,4-Dinitrotoluene		182	2210	3310	U
606-20-2	2,6-Dinitrotoluene		98.3	1100	2210	U
91-58-7	2-Chloronaphthalene		117	276	552	U
95-57-8	2-Chlorophenol		123	276	552	U
91-57-6	2-Methylnaphthalene		107	276	552	U
95-48-7	2-Methylphenol		63.5	138	276	U
88-74-4	2-Nitroaniline		74.4	276	552	U
88-75-5	2-Nitrophenol		86.4	1100	2210	U
91-94-1	3,3'-Dichlorobenzidine		526	1100	2210	U
84989-04-8	3 & 4-Methylphenol		215	552	1100	U
99-09-2	3-Nitroaniline		134	414	829	U
534-52-1	4,6-Dinitro-2-methylphenol		1320	4140	8290	U
101-55-3	4-Bromophenyl-phenylether		146	414	829	U
59-50-7	4-Chloro-3-methylphenol		75.8	276	552	U
106-47-8	4-Chloroaniline		133	414	829	U
7005-72-3	4-Chlorophenyl-phenylether		140	414	829	U
100-01-6	4-Nitroaniline		110	552	1100	U
100-02-7	4-Nitrophenol		1790	5520	11000	U
83-32-9	Acenaphthene		111	276	552	U
208-96-8	Acenaphthylene		73.2	276	552	U

*MW 10-19*

# 1 - FORM I

## ANALYSIS DATA SHEET

18111128

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0510-04
		File ID:	S18L20017.D
Sampled:	12/12/18 10:00	Prepared:	12/18/18 18:41
		Analyzed:	12/20/18 21:25
Solids:	90.25	Preparation:	3550_B
		Dilution:	25
Initial/Final:	40.1189 g / 1 ml		
Batch:	B8L0593	Sequence:	S8L0306
		Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
120-12-7	Anthracene		57.6	138	276	U
103-33-3	Azobenzene as 1,2-Diphenylhydrazine		79.0	276	552	U
92-87-5	Benzidine		1150	27600	64400	U
56-55-3	Benzo(a)anthracene		38.0	138	276	U
50-32-8	Benzo(a)pyrene		169	1100	2210	U
205-99-2	Benzo(b)fluoranthene		86.1	1100	2210	U
191-24-2	Benzo(g,h,i)perylene		123	552	1100	U
207-08-9	Benzo(k)fluoranthene		135	552	1100	U
65-85-0	Benzoic acid		2750	16600	27600	U
100-51-6	Benzyl alcohol		106	276	552	U
111-91-1	Bis(2-chloroethoxy)methane		121	276	552	U
111-44-4	Bis(2-chloroethyl)ether		1460	4140	8290	U
108-60-1	Bis(2-chloroisopropyl)ether		1860	5520	11000	U
117-81-7	Bis(2-ethylhexyl)phthalate	960 <i>mu</i>	232	829	1660	<del>U, D, R</del>
85-68-7	Butyl benzyl phthalate		229	829	1660	U
86-74-8	Carbazole		93.1	276	552	U
218-01-9	Chrysene		88.0	276	552	U
53-70-3	Dibenzo(a,h)anthracene		82.3	1100	2210	U
132-64-9	Dibenzofuran		124	276	552	U
84-66-2	Diethyl phthalate		80.8	276	552	U
131-11-3	Dimethyl phthalate		50.7	138	276	U
84-74-2	Di-n-butyl phthalate		102	276	552	U
117-84-0	Di-n-octyl phthalate		417	1100	2210	U
206-44-0	Fluoranthene		75.9	276	552	U
86-73-7	Fluorene		109	276	552	U
118-74-1	Hexachlorobenzene		106	276	552	U
87-68-3	Hexachlorobutadiene		170	552	1100	U
77-47-4	Hexachlorocyclopentadiene		2080	5520	11000	U
67-72-1	Hexachloroethane		151	552	1100	U

*MW Hot 9*

# 1 - FORM I

## ANALYSIS DATA SHEET

18111128

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0510-04
		File ID:	S18L20017.D
Sampled:	12/12/18 10:00	Prepared:	12/18/18 18:41
		Analyzed:	12/20/18 21:25
Solids:	90.25	Preparation:	3550_B
		Dilution:	25
Initial/Final:	40.1189 g / 1 ml		
Batch:	B8L0593	Sequence:	S8L0306
		Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
193-39-5	Indeno(1,2,3-cd)pyrene		87.6	1100	2210	U
78-59-1	Isophorone		657	1660	3310	U
91-20-3	Naphthalene		152	552	1100	U
98-95-3	Nitrobenzene		143	552	1100	U
62-75-9	N-Nitrosodimethylamine		209	552	1100	U
621-64-7	N-Nitrosodi-n-propylamine		259	829	1660	U
86-30-6	N-Nitrosodiphenylamine		78.4	276	552	U
87-86-5	Pentachlorophenol		1490	4140	8290	U
85-01-8	Phenanthrene		121	276	552	U
108-95-2	Phenol		152	552	1100	U
129-00-0	Pyrene		39.1	138	276	U

Italicized = secondary result

*MW H019*

# 1 - FORM I

## ANALYSIS DATA SHEET

18111129

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0510-05
		File ID:	S18L20013.D
Sampled:	12/12/18 10:10	Prepared:	12/18/18 18:41
		Analyzed:	12/20/18 19:10
Solids:	90.33	Preparation:	3550_B
		Dilution:	5
Initial/Final:	39.9653 g / 1 ml		
Batch:	B8L0593	Sequence:	S8L0306
		Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
120-82-1	1,2,4-Trichlorobenzene		32.3	111	222	U
95-50-1	1,2-Dichlorobenzene		37.1	111	222	U
541-73-1	1,3-Dichlorobenzene		32.5	111	222	U
106-46-7	1,4-Dichlorobenzene		42.3	111	222	U
95-95-4	2,4,5-Trichlorophenol		19.7	55.4	111	U
88-06-2	2,4,6-Trichlorophenol		14.2	55.4	111	U
120-83-2	2,4-Dichlorophenol		17.7	55.4	111	U
105-67-9	2,4-Dimethylphenol		22.8	55.4	111	U
51-28-5	2,4-Dinitrophenol		546	1660	3320	U
121-14-2	2,4-Dinitrotoluene		36.5	443	665	U
606-20-2	2,6-Dinitrotoluene		19.7	222	443	U
91-58-7	2-Chloronaphthalene		23.5	55.4	111	U
95-57-8	2-Chlorophenol		24.7	55.4	111	U
91-57-6	2-Methylnaphthalene		21.4	55.4	111	U
95-48-7	2-Methylphenol		12.7	27.7	55.4	U
88-74-4	2-Nitroaniline		14.9	55.4	111	U
88-75-5	2-Nitrophenol		17.3	222	443	U
91-94-1	3,3'-Dichlorobenzidine		106	222	443	U
84989-04-8	3 & 4-Methylphenol		43.2	111	222	U
99-09-2	3-Nitroaniline		26.8	83.1	166	U
534-52-1	4,6-Dinitro-2-methylphenol		265	831	1660	U
101-55-3	4-Bromophenyl-phenylether		29.4	83.1	166	U
59-50-7	4-Chloro-3-methylphenol		15.2	55.4	111	U
106-47-8	4-Chloroaniline		26.6	83.1	166	U
7005-72-3	4-Chlorophenyl-phenylether		28.1	83.1	166	U
100-01-6	4-Nitroaniline		22.0	111	222	U
100-02-7	4-Nitrophenol		358	1110	2220	U
83-32-9	Acenaphthene		22.2	55.4	111	U
208-96-8	Acenaphthylene		14.7	55.4	111	U


*MW Hota*

# 1 - FORM I

## ANALYSIS DATA SHEET

18111129

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0510-05
		File ID:	S18L20013.D
Sampled:	12/12/18 10:10	Prepared:	12/18/18 18:41
		Analyzed:	12/20/18 19:10
Solids:	90.33	Preparation:	3550_B
		Dilution:	5
Initial/Final:	39.9653 g / 1 ml		
Batch:	B8L0593	Sequence:	S8L0306
		Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
120-12-7	Anthracene		11.6	27.7	55.4	U
103-33-3	Azobenzene as 1,2-Diphenylhydrazine		15.8	55.4	111	U
92-87-5	Benzidine		230	5540	12900	U
56-55-3	Benzo(a)anthracene		7.63	27.7	55.4	U
50-32-8	Benzo(a)pyrene		34.0	222	443	U
205-99-2	Benzo(b)fluoranthene		17.3	222	443	U
191-24-2	Benzo(g,h,i)perylene		24.6	111	222	U
207-08-9	Benzo(k)fluoranthene		27.1	111	222	U
65-85-0	Benzoic acid		551	3320	5540	U
100-51-6	Benzyl alcohol		21.3	55.4	111	U
111-91-1	Bis(2-chloroethoxy)methane		24.3	55.4	111	U
111-44-4	Bis(2-chloroethyl)ether		294	831	1660	U
108-60-1	Bis(2-chloroisopropyl)ether		374	1110	2220	U
117-81-7	Bis(2-ethylhexyl)phthalate		46.5	166	332	U
85-68-7	Butyl benzyl phthalate		45.9	166	332	U
86-74-8	Carbazole		18.7	55.4	111	U
218-01-9	Chrysene		17.6	55.4	111	U
53-70-3	Dibenzo(a,h)anthracene		16.5	222	443	U
132-64-9	Dibenzofuran		24.8	55.4	111	U
84-66-2	Diethyl phthalate		16.2	55.4	111	U
131-11-3	Dimethyl phthalate		10.2	27.7	55.4	U
84-74-2	Di-n-butyl phthalate		20.5	55.4	111	U
117-84-0	Di-n-octyl phthalate		83.6	222	443	U
206-44-0	Fluoranthene	36.0	15.2	55.4	111	J. D. 
86-73-7	Fluorene		21.8	55.4	111	U
118-74-1	Hexachlorobenzene		21.3	55.4	111	U
87-68-3	Hexachlorobutadiene		34.1	111	222	U
77-47-4	Hexachlorocyclopentadiene		417	1110	2220	U
67-72-1	Hexachloroethane		30.4	111	222	U






# 1 - FORM I

## ANALYSIS DATA SHEET

18111129

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0510-05
		File ID:	S18L20013.D
Sampled:	12/12/18 10:10	Prepared:	12/18/18 18:41
		Analyzed:	12/20/18 19:10
Solids:	90.33	Preparation:	3550_B
		Dilution:	5
Initial/Final:	39.9653 g / 1 ml		
Batch:	B8L0593	Sequence:	S8L0306
		Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
193-39-5	Indeno(1,2,3-cd)pyrene		17.6	222	443	U
78-59-1	Isophorone		132	332	665	U
91-20-3	Naphthalene		30.5	111	222	U
98-95-3	Nitrobenzene		28.7	111	222	U
62-75-9	N-Nitrosodimethylamine		41.9	111	222	U
621-64-7	N-Nitrosodi-n-propylamine		52.0	166	332	U
86-30-6	N-Nitrosodiphenylamine		15.7	55.4	111	U
87-86-5	Pentachlorophenol		298	831	1660	U
85-01-8	Phenanthrene		24.4	55.4	111	U
108-95-2	Phenol		30.6	111	222	U
129-00-0	Pyrene	48.5	7.85	27.7	55.4	J. 

Italicized = secondary result



# 1 - FORM I

## ANALYSIS DATA SHEET

18111130

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0510-06
		File ID:	S18L20018.D
Sampled:	12/12/18 12:00	Prepared:	12/18/18 18:41
		Analyzed:	12/20/18 21:59
Solids:	85.79	Preparation:	3550_B
		Dilution:	25
Initial/Final:	39.9841 g / 1 ml		
Batch:	B8L0593	Sequence:	S8L0306
		Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
120-82-1	1,2,4-Trichlorobenzene		170	583	1170	U
95-50-1	1,2-Dichlorobenzene		195	583	1170	U
541-73-1	1,3-Dichlorobenzene		171	583	1170	U
106-46-7	1,4-Dichlorobenzene		223	583	1170	U
95-95-4	2,4,5-Trichlorophenol		104	292	583	U
88-06-2	2,4,6-Trichlorophenol		74.6	292	583	U
120-83-2	2,4-Dichlorophenol		93.3	292	583	U
105-67-9	2,4-Dimethylphenol		120	292	583	U
51-28-5	2,4-Dinitrophenol		2870	8750	17500	U
121-14-2	2,4-Dinitrotoluene		192	2330	3500	U
606-20-2	2,6-Dinitrotoluene		104	1170	2330	U
91-58-7	2-Chloronaphthalene		124	292	583	U
95-57-8	2-Chlorophenol		130	292	583	U
91-57-6	2-Methylnaphthalene		113	292	583	U
95-48-7	2-Methylphenol		67.0	146	292	U
88-74-4	2-Nitroaniline		78.5	292	583	U
88-75-5	2-Nitrophenol		91.2	1170	2330	U
91-94-1	3,3'-Dichlorobenzidine		556	1170	2330	U
84989-04-8	3 & 4-Methylphenol		227	583	1170	U
99-09-2	3-Nitroaniline		141	437	875	U
534-52-1	4,6-Dinitro-2-methylphenol		1390	4370	8750	U
101-55-3	4-Bromophenyl-phenylether		154	437	875	U
59-50-7	4-Chloro-3-methylphenol		80.0	292	583	U
106-47-8	4-Chloroaniline		140	437	875	U
7005-72-3	4-Chlorophenyl-phenylether		148	437	875	U
100-01-6	4-Nitroaniline		116	583	1170	U
100-02-7	4-Nitrophenol		1890	5830	11700	U
83-32-9	Acenaphthene		117	292	583	U
208-96-8	Acenaphthylene		77.3	292	583	U

*MW H019*

# 1 - FORM I ANALYSIS DATA SHEET

18111130

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0510-06
		File ID:	S18L20018.D
Sampled:	12/12/18 12:00	Prepared:	12/18/18 18:41
		Analyzed:	12/20/18 21:59
Solids:	85.79	Preparation:	3550_B
		Dilution:	25
Initial/Final:	39.9841 g / 1 ml		
Batch:	B8L0593	Sequence:	S8L0306
		Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
120-12-7	Anthracene		60.8	146	292	U
103-33-3	Azobenzene as 1,2-Diphenylhydrazine		83.3	292	583	U
92-87-5	Benzidine		1210	29200	68000	U
56-55-3	Benzo(a)anthracene		40.1	146	292	U
50-32-8	Benzo(a)pyrene		179	1170	2330	U
205-99-2	Benzo(b)fluoranthene		90.9	1170	2330	U
191-24-2	Benzo(g,h,i)perylene		130	583	1170	U
207-08-9	Benzo(k)fluoranthene		142	583	1170	U
65-85-0	Benzoic acid		2900	17500	29200	U
100-51-6	Benzyl alcohol		112	292	583	U
111-91-1	Bis(2-chloroethoxy)methane		128	292	583	U
111-44-4	Bis(2-chloroethyl)ether		1550	4370	8750	U
108-60-1	Bis(2-chloroisopropyl)ether		1970	5830	11700	U
117-81-7	Bis(2-ethylhexyl)phthalate	714 <del>IN</del>	245	875	1750	U <del>U, D, B, A, G</del>
85-68-7	Butyl benzyl phthalate		242	875	1750	U
86-74-8	Carbazole		98.2	292	583	U
218-01-9	Chrysene		92.8	292	583	U
53-70-3	Dibenzo(a,h)anthracene		86.9	1170	2330	U
132-64-9	Dibenzofuran		130	292	583	U
84-66-2	Diethyl phthalate		85.3	292	583	U
131-11-3	Dimethyl phthalate		53.5	146	292	U
84-74-2	Di-n-butyl phthalate		108	292	583	U
117-84-0	Di-n-octyl phthalate		440	1170	2330	U
206-44-0	Fluoranthene		80.2	292	583	U
86-73-7	Fluorene		115	292	583	U
118-74-1	Hexachlorobenzene		112	292	583	U
87-68-3	Hexachlorobutadiene		179	583	1170	U
77-47-4	Hexachlorocyclopentadiene		2190	5830	11700	U
67-72-1	Hexachloroethane		160	583	1170	U

*MW H019*

# 1 - FORM I

## ANALYSIS DATA SHEET

18111130

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0510-06
		File ID:	S18L20018.D
Sampled:	12/12/18 12:00	Prepared:	12/18/18 18:41
		Analyzed:	12/20/18 21:59
Solids:	85.79	Preparation:	3550_B
		Dilution:	25
Initial/Final:	39.9841 g / 1 ml		
Batch:	B8L0593	Sequence:	S8L0306
		Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
193-39-5	Indeno(1,2,3-cd)pyrene		92.5	1170	2330	U
78-59-1	Isophorone		694	1750	3500	U
91-20-3	Naphthalene		160	583	1170	U
98-95-3	Nitrobenzene		151	583	1170	U
62-75-9	N-Nitrosodimethylamine		221	583	1170	U
621-64-7	N-Nitrosodi-n-propylamine		273	875	1750	U
86-30-6	N-Nitrosodiphenylamine		82.8	292	583	U
87-86-5	Pentachlorophenol		1570	4370	8750	U
85-01-8	Phenanthrene		128	292	583	U
108-95-2	Phenol		161	583	1170	U
129-00-0	Pyrene		41.3	146	292	U

Italicized = secondary result

*MW H049*

# 1 - FORM I

## ANALYSIS DATA SHEET

18111131

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0510-07
		File ID:	S18L20019.D
Sampled:	12/12/18 12:10	Prepared:	12/18/18 18:41
		Analyzed:	12/20/18 22:32
Solids:	91.94	Preparation:	3550_B
		Dilution:	25
Initial/Final:	39.9064 g / 1 ml		
Batch:	B8L0593	Sequence:	S8L0306
		Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
120-82-1	1,2,4-Trichlorobenzene		159	545	1090	U
95-50-1	1,2-Dichlorobenzene		183	545	1090	U
541-73-1	1,3-Dichlorobenzene		160	545	1090	U
106-46-7	1,4-Dichlorobenzene		208	545	1090	U
95-95-4	2,4,5-Trichlorophenol		96.8	273	545	U
88-06-2	2,4,6-Trichlorophenol		69.8	273	545	U
120-83-2	2,4-Dichlorophenol		87.2	273	545	U
105-67-9	2,4-Dimethylphenol		112	273	545	U
51-28-5	2,4-Dinitrophenol		2690	8180	16400	U
121-14-2	2,4-Dinitrotoluene		180	2180	3270	U
606-20-2	2,6-Dinitrotoluene		97.0	1090	2180	U
91-58-7	2-Chloronaphthalene		116	273	545	U
95-57-8	2-Chlorophenol		122	273	545	U
91-57-6	2-Methylnaphthalene		105	273	545	U
95-48-7	2-Methylphenol		62.6	136	273	U
88-74-4	2-Nitroaniline		73.4	273	545	U
88-75-5	2-Nitrophenol		85.3	1090	2180	U
91-94-1	3,3'-Dichlorobenzidine		519	1090	2180	U
84989-04-8	3 & 4-Methylphenol		213	545	1090	U
99-09-2	3-Nitroaniline		132	409	818	U
534-52-1	4,6-Dinitro-2-methylphenol		1300	4090	8180	U
101-55-3	4-Bromophenyl-phenylether		144	409	818	U
59-50-7	4-Chloro-3-methylphenol		74.8	273	545	U
106-47-8	4-Chloroaniline		131	409	818	U
7005-72-3	4-Chlorophenyl-phenylether		138	409	818	U
100-01-6	4-Nitroaniline		108	545	1090	U
100-02-7	4-Nitrophenol		1760	5450	10900	U
83-32-9	Acenaphthene		109	273	545	U
208-96-8	Acenaphthylene		72.3	273	545	U

*MW 1/10/19*

# 1 - FORM I

## ANALYSIS DATA SHEET

18111131

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0510-07
		File ID:	S18L20019.D
Sampled:	12/12/18 12:10	Prepared:	12/18/18 18:41
		Analyzed:	12/20/18 22:32
Solids:	91.94	Preparation:	3550_B
		Dilution:	25
Initial/Final:	39.9064 g / 1 ml		
Batch:	B8L0593	Sequence:	S8L0306
		Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
120-12-7	Anthracene		56.9	136	273	U
103-33-3	Azobenzene as 1,2-Diphenylhydrazine		77.9	273	545	U
92-87-5	Benzidine		1130	27300	63600	U
56-55-3	Benzo(a)anthracene		37.5	136	273	U
50-32-8	Benzo(a)pyrene		167	1090	2180	U
205-99-2	Benzo(b)fluoranthene		85.0	1090	2180	U
191-24-2	Benzo(g,h,i)perylene		121	545	1090	U
207-08-9	Benzo(k)fluoranthene		133	545	1090	U
65-85-0	Benzoic acid		2710	16400	27300	U
100-51-6	Benzyl alcohol		105	273	545	U
111-91-1	Bis(2-chloroethoxy)methane		119	273	545	U
111-44-4	Bis(2-chloroethyl)ether		1440	4090	8180	U
108-60-1	Bis(2-chloroisopropyl)ether		1840	5450	10900	U
117-81-7	Bis(2-ethylhexyl)phthalate	<del>1490</del> <i>119</i>	229	818	1640	<i>U, D, B, G</i>
85-68-7	Butyl benzyl phthalate		226	818	1640	U
86-74-8	Carbazole		91.9	273	545	U
218-01-9	Chrysene		86.8	273	545	U
53-70-3	Dibenzo(a,h)anthracene		81.2	1090	2180	U
132-64-9	Dibenzofuran		122	273	545	U
84-66-2	Diethyl phthalate		79.7	273	545	U
131-11-3	Dimethyl phthalate		50.0	136	273	U
84-74-2	Di-n-butyl phthalate		101	273	545	U
117-84-0	Di-n-octyl phthalate		411	1090	2180	U
206-44-0	Fluoranthene		75.0	273	545	U
86-73-7	Fluorene		107	273	545	U
118-74-1	Hexachlorobenzene		105	273	545	U
87-68-3	Hexachlorobutadiene		168	545	1090	U
77-47-4	Hexachlorocyclopentadiene		2050	5450	10900	U
67-72-1	Hexachloroethane		149	545	1090	U

*Mw H-19*

# 1 - FORM I

## ANALYSIS DATA SHEET

18111131

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0510-07
		File ID:	S18L20019.D
Sampled:	12/12/18 12:10	Prepared:	12/18/18 18:41
		Analyzed:	12/20/18 22:32
Solids:	91.94	Preparation:	3550_B
		Dilution:	25
Initial/Final:	39.9064 g / 1 ml		
Batch:	B8L0593	Sequence:	S8L0306
		Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
193-39-5	Indeno(1,2,3-cd)pyrene		86.5	1090	2180	U
78-59-1	Isophorone		648	1640	3270	U
91-20-3	Naphthalene		150	545	1090	U
98-95-3	Nitrobenzene		141	545	1090	U
62-75-9	N-Nitrosodimethylamine		206	545	1090	U
621-64-7	N-Nitrosodi-n-propylamine		256	818	1640	U
86-30-6	N-Nitrosodiphenylamine		77.4	273	545	U
87-86-5	Pentachlorophenol		1470	4090	8180	U
85-01-8	Phenanthrene		120	273	545	U
108-95-2	Phenol		150	545	1090	U
129-00-0	Pyrene	164	38.6	136	273	U

Italicized = secondary result

*mtb19*

# 1 - FORM I

## ANALYSIS DATA SHEET

18111132

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0510-08
Sampled:	12/12/18 14:30	Prepared:	12/18/18 18:41
Solids:	87.17	Preparation:	3550_B
Initial/Final:	39.9283 g / 1 ml	Analyzed:	12/20/18 23:06
Batch:	B8L0593	Sequence:	S8L0306
		Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
120-82-1	1,2,4-Trichlorobenzene		168	575	1150	U
95-50-1	1,2-Dichlorobenzene		193	575	1150	U
541-73-1	1,3-Dichlorobenzene		168	575	1150	U
106-46-7	1,4-Dichlorobenzene		220	575	1150	U
95-95-4	2,4,5-Trichlorophenol		102	287	575	U
88-06-2	2,4,6-Trichlorophenol		73.6	287	575	U
120-83-2	2,4-Dichlorophenol		91.9	287	575	U
105-67-9	2,4-Dimethylphenol		118	287	575	U
51-28-5	2,4-Dinitrophenol		2830	8620	17200	U
121-14-2	2,4-Dinitrotoluene		190	2300	3450	U
606-20-2	2,6-Dinitrotoluene		102	1150	2300	U
91-58-7	2-Chloronaphthalene		122	287	575	U
95-57-8	2-Chlorophenol		128	287	575	U
91-57-6	2-Methylnaphthalene		111	287	575	U
95-48-7	2-Methylphenol		66.0	144	287	U
88-74-4	2-Nitroaniline		77.3	287	575	U
88-75-5	2-Nitrophenol		89.9	1150	2300	U
91-94-1	3,3'-Dichlorobenzidine		547	1150	2300	U
84989-04-8	3 & 4-Methylphenol		224	575	1150	U
99-09-2	3-Nitroaniline		139	431	862	U
534-52-1	4,6-Dinitro-2-methylphenol		1370	4310	8620	U
101-55-3	4-Bromophenyl-phenylether		152	431	862	U
59-50-7	4-Chloro-3-methylphenol		78.8	287	575	U
106-47-8	4-Chloroaniline		138	431	862	U
7005-72-3	4-Chlorophenyl-phenylether		146	431	862	U
100-01-6	4-Nitroaniline		114	575	1150	U
100-02-7	4-Nitrophenol		1860	5750	11500	U
83-32-9	Acenaphthene		115	287	575	U
208-96-8	Acenaphthylene		76.2	287	575	U

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# 1 - FORM I

## ANALYSIS DATA SHEET

18111132

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0510-08
Sampled:	12/12/18 14:30	Prepared:	12/18/18 18:41
Solids:	87.17	Preparation:	3550_B
Initial/Final:	39.9283 g / 1 ml	Analyzed:	12/20/18 23:06
Batch:	B8L0593	Sequence:	S8L0306
		Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
120-12-7	Anthracene		59.9	144	287	U
103-33-3	Azobenzene as 1,2-Diphenylhydrazine		82.1	287	575	U
92-87-5	Benzidine		1190	28700	67000	U
56-55-3	Benzo(a)anthracene		39.6	144	287	U
50-32-8	Benzo(a)pyrene		176	1150	2300	U
205-99-2	Benzo(b)fluoranthene		89.6	1150	2300	U
191-24-2	Benzo(g,h,i)perylene		128	575	1150	U
207-08-9	Benzo(k)fluoranthene		140	575	1150	U
65-85-0	Benzoic acid		2860	17200	28700	U
100-51-6	Benzyl alcohol		111	287	575	U
111-91-1	Bis(2-chloroethoxy)methane		126	287	575	U
111-44-4	Bis(2-chloroethyl)ether		1520	4310	8620	U
108-60-1	Bis(2-chloroisopropyl)ether		1940	5750	11500	U
117-81-7	Bis(2-ethylhexyl)phthalate	<del>1300</del> <i>mw</i>	241	862	1720	<del>U, J, D, B, mw</del> <i>Q</i>
85-68-7	Butyl benzyl phthalate		238	862	1720	U
86-74-8	Carbazole		96.8	287	575	U
218-01-9	Chrysene		91.5	287	575	U
53-70-3	Dibenzo(a,h)anthracene		85.6	1150	2300	U
132-64-9	Dibenzofuran		129	287	575	U
84-66-2	Diethyl phthalate		84.0	287	575	U
131-11-3	Dimethyl phthalate		52.7	144	287	U
84-74-2	Di-n-butyl phthalate		107	287	575	U
117-84-0	Di-n-octyl phthalate		434	1150	2300	U
206-44-0	Fluoranthene		79.0	287	575	U
86-73-7	Fluorene		113	287	575	U
118-74-1	Hexachlorobenzene		111	287	575	U
87-68-3	Hexachlorobutadiene		177	575	1150	U
77-47-4	Hexachlorocyclopentadiene		2160	5750	11500	U
67-72-1	Hexachloroethane		158	575	1150	U

*mw* 10-19

# 1 - FORM I

## ANALYSIS DATA SHEET

18111132

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0510-08
		File ID:	S18L20020.D
Sampled:	12/12/18 14:30	Prepared:	12/18/18 18:41
		Analyzed:	12/20/18 23:06
Solids:	87.17	Preparation:	3550_B
		Dilution:	25
Initial/Final:	39.9283 g / 1 ml		
Batch:	B8L0593	Sequence:	S8L0306
		Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
193-39-5	Indeno(1,2,3-cd)pyrene		91.2	1150	2300	U
78-59-1	Isophorone		684	1720	3450	U
91-20-3	Naphthalene		158	575	1150	U
98-95-3	Nitrobenzene		149	575	1150	U
62-75-9	N-Nitrosodimethylamine		217	575	1150	U
621-64-7	N-Nitrosodi-n-propylamine		270	862	1720	U
86-30-6	N-Nitrosodiphenylamine		81.6	287	575	U
87-86-5	Pentachlorophenol		1550	4310	8620	U
85-01-8	Phenanthrene		126	287	575	U
108-95-2	Phenol		159	575	1150	U
129-00-0	Pyrene	194	40.7	144	287	U

Italicized = secondary result

J. P. 



# 1 - FORM I

## ANALYSIS DATA SHEET

18111133

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0510-09
		File ID:	S18L20021.D
Sampled:	12/12/18 15:00	Prepared:	12/18/18 18:41
		Analyzed:	12/20/18 23:40
Solids:	81.84	Preparation:	3550_B
		Dilution:	25
Initial/Final:	40.02 g / 1 ml		
Batch:	B8L0593	Sequence:	S8L0306
		Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
120-82-1	1,2,4-Trichlorobenzene		178	611	1220	U
95-50-1	1,2-Dichlorobenzene		205	611	1220	U
541-73-1	1,3-Dichlorobenzene		179	611	1220	U
106-46-7	1,4-Dichlorobenzene		233	611	1220	U
95-95-4	2,4,5-Trichlorophenol		108	305	611	U
88-06-2	2,4,6-Trichlorophenol		78.2	305	611	U
120-83-2	2,4-Dichlorophenol		97.7	305	611	U
105-67-9	2,4-Dimethylphenol		126	305	611	U
51-28-5	2,4-Dinitrophenol		3010	9160	18300	U
121-14-2	2,4-Dinitrotoluene		201	2440	3660	U
606-20-2	2,6-Dinitrotoluene		109	1220	2440	U
91-58-7	2-Chloronaphthalene		130	305	611	U
95-57-8	2-Chlorophenol		136	305	611	U
91-57-6	2-Methylnaphthalene		118	305	611	U
95-48-7	2-Methylphenol		70.1	153	305	U
88-74-4	2-Nitroaniline		82.2	305	611	U
88-75-5	2-Nitrophenol		95.5	1220	2440	U
91-94-1	3,3'-Dichlorobenzidine		582	1220	2440	U
84989-04-8	3 & 4-Methylphenol		238	611	1220	U
99-09-2	3-Nitroaniline		148	458	916	U
534-52-1	4,6-Dinitro-2-methylphenol		1460	4580	9160	U
101-55-3	4-Bromophenyl-phenylether		162	458	916	U
59-50-7	4-Chloro-3-methylphenol		83.8	305	611	U
106-47-8	4-Chloroaniline		147	458	916	U
7005-72-3	4-Chlorophenyl-phenylether		155	458	916	U
100-01-6	4-Nitroaniline		121	611	1220	U
100-02-7	4-Nitrophenol		1980	6110	12200	U
83-32-9	Acenaphthene		123	305	611	U
208-96-8	Acenaphthylene		80.9	305	611	U

JAN 19

# 1 - FORM I

## ANALYSIS DATA SHEET

18111133

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0510-09
		File ID:	S18L20021.D
Sampled:	12/12/18 15:00	Prepared:	12/18/18 18:41
		Analyzed:	12/20/18 23:40
Solids:	81.84	Preparation:	3550_B
		Dilution:	25
Initial/Final:	40.02 g / 1 ml		
Batch:	B8L0593	Sequence:	S8L0306
		Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
120-12-7	Anthracene		63.7	153	305	U
103-33-3	Azobenzene as 1,2-Diphenylhydrazine		87.3	305	611	U
92-87-5	Benzidine		1270	30500	71200	U
56-55-3	Benzo(a)anthracene		42.0	153	305	U
50-32-8	Benzo(a)pyrene		187	1220	2440	U
205-99-2	Benzo(b)fluoranthene		95.2	1220	2440	U
191-24-2	Benzo(g,h,i)perylene		136	611	1220	U
207-08-9	Benzo(k)fluoranthene		149	611	1220	U
65-85-0	Benzoic acid		3040	18300	30500	U
100-51-6	Benzyl alcohol		118	305	611	U
111-91-1	Bis(2-chloroethoxy)methane		134	305	611	U
111-44-4	Bis(2-chloroethyl)ether		1620	4580	9160	U
108-60-1	Bis(2-chloroisopropyl)ether		2060	6110	12200	U
117-81-7	Bis(2-ethylhexyl)phthalate		256	916	1830	U
85-68-7	Butyl benzyl phthalate		253	916	1830	U
86-74-8	Carbazole		103	305	611	U
218-01-9	Chrysene		97.2	305	611	U
53-70-3	Dibenzo(a,h)anthracene		91.0	1220	2440	U
132-64-9	Dibenzofuran		137	305	611	U
84-66-2	Diethyl phthalate		89.3	305	611	U
131-11-3	Dimethyl phthalate		56.0	153	305	U
84-74-2	Di-n-butyl phthalate		113	305	611	U
117-84-0	Di-n-octyl phthalate		461	1220	2440	U
206-44-0	Fluoranthene		84.0	305	611	U
86-73-7	Fluorene		120	305	611	U
118-74-1	Hexachlorobenzene		118	305	611	U
87-68-3	Hexachlorobutadiene		188	611	1220	U
77-47-4	Hexachlorocyclopentadiene		2300	6110	12200	U
67-72-1	Hexachloroethane		167	611	1220	U

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# 1 - FORM I

## ANALYSIS DATA SHEET

18111133

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0510-09
		File ID:	S18L20021.D
Sampled:	12/12/18 15:00	Prepared:	12/18/18 18:41
		Analyzed:	12/20/18 23:40
Solids:	81.84	Preparation:	3550_B
		Dilution:	25
Initial/Final:	40.02 g / 1 ml		
Batch:	B8L0593	Sequence:	S8L0306
		Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
193-39-5	Indeno(1,2,3-cd)pyrene		96.9	1220	2440	U
78-59-1	Isophorone		726	1830	3660	U
91-20-3	Naphthalene		168	611	1220	U
98-95-3	Nitrobenzene		158	611	1220	U
62-75-9	N-Nitrosodimethylamine		231	611	1220	U
621-64-7	N-Nitrosodi-n-propylamine		286	916	1830	U
86-30-6	N-Nitrosodiphenylamine		86.7	305	611	U
87-86-5	Pentachlorophenol		1640	4580	9160	U
85-01-8	Phenanthrene		134	305	611	U
108-95-2	Phenol		169	611	1220	U
129-00-0	Pyrene		43.3	153	305	U

Italicized = secondary result

*MW H019*

# 1 - FORM I

## ANALYSIS DATA SHEET

18111134

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0510-10
		File ID:	S18L20022.D
Sampled:	12/12/18 15:00	Prepared:	12/18/18 18:41
		Analyzed:	12/21/18 00:14
Solids:	83.19	Preparation:	3550_B
		Dilution:	25
Initial/Final:	40.0217 g / 1 ml		
Batch:	B8L0593	Sequence:	S8L0306
		Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
120-82-1	1,2,4-Trichlorobenzene		175	601	1200	U
95-50-1	1,2-Dichlorobenzene		201	601	1200	U
541-73-1	1,3-Dichlorobenzene		176	601	1200	U
106-46-7	1,4-Dichlorobenzene		230	601	1200	U
95-95-4	2,4,5-Trichlorophenol		107	300	601	U
88-06-2	2,4,6-Trichlorophenol		76.9	300	601	U
120-83-2	2,4-Dichlorophenol		96.1	300	601	U
105-67-9	2,4-Dimethylphenol		124	300	601	U
51-28-5	2,4-Dinitrophenol		2960	9010	18000	U
121-14-2	2,4-Dinitrotoluene		198	2400	3600	U
606-20-2	2,6-Dinitrotoluene		107	1200	2400	U
91-58-7	2-Chloronaphthalene		128	300	601	U
95-57-8	2-Chlorophenol		134	300	601	U
91-57-6	2-Methylnaphthalene		116	300	601	U
95-48-7	2-Methylphenol		69.0	150	300	U
88-74-4	2-Nitroaniline		80.9	300	601	U
88-75-5	2-Nitrophenol		94.0	1200	2400	U
91-94-1	3,3'-Dichlorobenzidine		572	1200	2400	U
84989-04-8	3 & 4-Methylphenol		234	601	1200	U
99-09-2	3-Nitroaniline		145	451	901	U
534-52-1	4,6-Dinitro-2-methylphenol		1440	4510	9010	U
101-55-3	4-Bromophenyl-phenylether		159	451	901	U
59-50-7	4-Chloro-3-methylphenol		82.4	300	601	U
106-47-8	4-Chloroaniline		144	451	901	U
7005-72-3	4-Chlorophenyl-phenylether		152	451	901	U
100-01-6	4-Nitroaniline		119	601	1200	U
100-02-7	4-Nitrophenol		1940	6010	12000	U
83-32-9	Acenaphthene		121	300	601	U
208-96-8	Acenaphthylene		79.6	300	601	U

*AW* 10-19

# 1 - FORM I

## ANALYSIS DATA SHEET

18111134

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0510-10
		File ID:	S18L20022.D
Sampled:	12/12/18 15:00	Prepared:	12/18/18 18:41
		Analyzed:	12/21/18 00:14
Solids:	83.19	Preparation:	3550_B
		Dilution:	25
Initial/Final:	40.0217 g / 1 ml		
Batch:	B8L0593	Sequence:	S8L0306
		Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
120-12-7	Anthracene		62.7	150	300	U
103-33-3	Azobenzene as 1,2-Diphenylhydrazine		85.9	300	601	U
92-87-5	Benzidine		1250	30000	70100	U
56-55-3	Benzo(a)anthracene		41.4	150	300	U
50-32-8	Benzo(a)pyrene		184	1200	2400	U
205-99-2	Benzo(b)fluoranthene		93.7	1200	2400	U
191-24-2	Benzo(g,h,i)perylene		133	601	1200	U
207-08-9	Benzo(k)fluoranthene		147	601	1200	U
65-85-0	Benzoic acid		2990	18000	30000	U
100-51-6	Benzyl alcohol		116	300	601	U
111-91-1	Bis(2-chloroethoxy)methane		131	300	601	U
111-44-4	Bis(2-chloroethyl)ether		1590	4510	9010	U
108-60-1	Bis(2-chloroisopropyl)ether		2030	6010	12000	U
117-81-7	Bis(2-ethylhexyl)phthalate		252	901	1800	U
85-68-7	Butyl benzyl phthalate		249	901	1800	U
86-74-8	Carbazole		101	300	601	U
218-01-9	Chrysene		95.7	300	601	U
53-70-3	Dibenzo(a,h)anthracene		89.5	1200	2400	U
132-64-9	Dibenzofuran		134	300	601	U
84-66-2	Diethyl phthalate		87.9	300	601	U
131-11-3	Dimethyl phthalate		55.1	150	300	U
84-74-2	Di-n-butyl phthalate		111	300	601	U
117-84-0	Di-n-octyl phthalate		453	1200	2400	U
206-44-0	Fluoranthene		82.6	300	601	U
86-73-7	Fluorene		118	300	601	U
118-74-1	Hexachlorobenzene		116	300	601	U
87-68-3	Hexachlorobutadiene		185	601	1200	U
77-47-4	Hexachlorocyclopentadiene		2260	6010	12000	U
67-72-1	Hexachloroethane		165	601	1200	U

*Mw H019*

# 1 - FORM I

## ANALYSIS DATA SHEET

18111134

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Solid	Laboratory ID:	18L0510-10
		File ID:	S18L20022.D
Sampled:	12/12/18 15:00	Prepared:	12/18/18 18:41
		Analyzed:	12/21/18 00:14
Solids:	83.19	Preparation:	3550_B
		Dilution:	25
Initial/Final:	40.0217 g / 1 ml		
Batch:	B8L0593	Sequence:	S8L0306
		Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	MDL	LOD	RL	Q
193-39-5	Indeno(1,2,3-cd)pyrene		95.3	1200	2400	U
78-59-1	Isophorone		715	1800	3600	U
91-20-3	Naphthalene		165	601	1200	U
98-95-3	Nitrobenzene		156	601	1200	U
62-75-9	N-Nitrosodimethylamine		227	601	1200	U
621-64-7	N-Nitrosodi-n-propylamine		282	901	1800	U
86-30-6	N-Nitrosodiphenylamine		85.3	300	601	U
87-86-5	Pentachlorophenol		1620	4510	9010	U
85-01-8	Phenanthrene		132	300	601	U
108-95-2	Phenol		166	601	1200	U
129-00-0	Pyrene		42.6	150	300	U

Italicized = secondary result

*Mr. Hoi Q*



# 1 - FORM I

## ANALYSIS DATA SHEET

18111401

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Water	Laboratory ID:	18L0444-01
		File ID:	S18L14011.D
Sampled:	12/11/18 08:58	Prepared:	12/13/18 11:17
		Analyzed:	12/14/18 12:32
Solids:		Preparation:	3510_B
		Dilution:	1
Initial/Final:	967.5 ml / 1 ml		
Batch:	B8L0446	Sequence:	S8L0194
		Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/L)	MDL	LOD	RL	Q
120-82-1	1,2,4-Trichlorobenzene		0.174	0.517	1.03	U
95-50-1	1,2-Dichlorobenzene		0.132	0.517	1.03	U
541-73-1	1,3-Dichlorobenzene		0.0954	0.310	1.03	U
106-46-7	1,4-Dichlorobenzene		0.150	0.517	1.03	U
95-95-4	2,4,5-Trichlorophenol		0.134	0.517	1.03	U
88-06-2	2,4,6-Trichlorophenol		0.115	0.310	1.03	U
120-83-2	2,4-Dichlorophenol		0.0814	0.310	1.03	U
105-67-9	2,4-Dimethylphenol		0.121	0.310	1.03	U
51-28-5	2,4-Dinitrophenol		3.42	10.3	31.0	U
121-14-2	2,4-Dinitrotoluene		3.07	10.3	31.0	U
606-20-2	2,6-Dinitrotoluene		0.0530	0.207	0.517	U
91-58-7	2-Chloronaphthalene		0.147	0.517	1.03	U
95-57-8	2-Chlorophenol		0.112	0.310	1.03	U
91-57-6	2-Methylnaphthalene		0.146	0.517	2.07	U
95-48-7	2-Methylphenol		0.125	0.310	1.03	U
88-74-4	2-Nitroaniline		2.65	10.3	31.0	U
88-75-5	2-Nitrophenol		0.0811	0.310	1.03	U
91-94-1	3,3'-Dichlorobenzidine		8.03	20.7	31.0	U
84989-04-8	3 & 4-Methylphenol		0.185	0.517	1.03	U
99-09-2	3-Nitroaniline		0.151	0.517	1.03	U
534-52-1	4,6-Dinitro-2-methylphenol		2.53	5.17	15.5	U
101-55-3	4-Bromophenyl-phenylether		0.165	0.517	1.03	U
59-50-7	4-Chloro-3-methylphenol		0.0737	0.207	0.517	U
106-47-8	4-Chloroaniline		0.193	0.517	1.03	U
7005-72-3	4-Chlorophenyl-phenylether		0.151	0.517	1.03	U
100-01-6	4-Nitroaniline		3.90	10.3	31.0	U
100-02-7	4-Nitrophenol		1.49	5.17	15.5	U
83-32-9	Acenaphthene		0.166	0.517	1.03	U
208-96-8	Acenaphthylene		0.0827	1.03	2.07	U

*MV Hota*

# 1 - FORM I

## ANALYSIS DATA SHEET

18111401

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Water	Laboratory ID:	18L0444-01
		File ID:	S18L14011.D
Sampled:	12/11/18 08:58	Prepared:	12/13/18 11:17
		Analyzed:	12/14/18 12:32
Solids:		Preparation:	3510_B
		Dilution:	1
Initial/Final:	967.5 ml / 1 ml		
Batch:	B8L0446	Sequence:	S8L0194
		Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/L)	MDL	LOD	RL	Q
120-12-7	Anthracene		0.0987	0.310	1.03	U
103-33-3	Azobenzene as 1,2-Diphenylhydrazine		0.0793	0.310	1.03	U
92-87-5	Benzidine		7.07	20.7	31.0	U
56-55-3	Benzo(a)anthracene		0.145	0.517	1.03	U
50-32-8	Benzo(a)pyrene		0.0935	0.310	2.07	U
205-99-2	Benzo(b)fluoranthene		0.114	0.310	2.07	U
191-24-2	Benzo(g,h,i)perylene		0.413	1.03	2.07	U
207-08-9	Benzo(k)fluoranthene		0.257	0.517	2.07	U
65-85-0	Benzoic acid		3.84	10.3	31.0	U
100-51-6	Benzyl alcohol	0.155	0.123	0.310	1.03	J Q
111-91-1	Bis(2-chloroethoxy)methane		0.131	0.517	1.03	U
111-44-4	Bis(2-chloroethyl)ether		0.150	0.517	1.03	U
108-60-1	Bis(2-chloroisopropyl)ether		0.133	0.517	1.03	U
117-81-7	Bis(2-ethylhexyl)phthalate		4.55	10.3	20.7	U
85-68-7	Butyl benzyl phthalate		0.0964	0.310	1.03	U
86-74-8	Carbazole		0.0854	0.310	1.03	U
218-01-9	Chrysene		0.166	0.517	1.03	U
53-70-3	Dibenzo(a,h)anthracene		0.172	0.517	1.03	U
132-64-9	Dibenzofuran		0.183	0.517	1.03	U
84-66-2	Diethyl phthalate		0.152	0.517	1.03	U
131-11-3	Dimethyl phthalate		0.0793	0.310	1.03	U
84-74-2	Di-n-butyl phthalate		0.181	0.517	2.07	U
117-84-0	Di-n-octyl phthalate		3.15	10.3	31.0	U
206-44-0	Fluoranthene		0.134	0.517	1.03	U
86-73-7	Fluorene		0.143	0.517	1.03	U
118-74-1	Hexachlorobenzene		0.171	0.517	1.03	U
87-68-3	Hexachlorobutadiene		0.223	0.517	1.03	U
77-47-4	Hexachlorocyclopentadiene		2.26	5.17	15.5	U
67-72-1	Hexachloroethane		0.0805	0.310	1.03	U

*MW Holo*

# 1 - FORM I

## ANALYSIS DATA SHEET

18111401

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Water	Laboratory ID:	18L0444-01
		File ID:	S18L14011.D
Sampled:	12/11/18 08:58	Prepared:	12/13/18 11:17
		Analyzed:	12/14/18 12:32
Solids:		Preparation:	3510_B
		Dilution:	1
Initial/Final:	967.5 ml / 1 ml		
Batch:	B8L0446	Sequence:	S8L0194
		Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/L)	MDL	LOD	RL	Q
193-39-5	Indeno(1,2,3-cd)pyrene		0.155	1.03	2.07	U
78-59-1	Isophorone		0.0796	0.310	1.03	U
91-20-3	Naphthalene		0.218	0.517	2.07	U
98-95-3	Nitrobenzene		0.157	0.517	1.03	U
62-75-9	N-Nitrosodimethylamine		0.563	2.07	5.17	U
621-64-7	N-Nitrosodi-n-propylamine		0.184	0.517	1.03	U
86-30-6	N-Nitrosodiphenylamine		0.102	0.310	1.03	U
87-86-5	Pentachlorophenol		2.61	10.3	31.0	U
85-01-8	Phenanthrene		0.202	0.517	2.07	U
108-95-2	Phenol		0.129	0.310	1.03	U
129-00-0	Pyrene		0.106	0.310	1.03	U

Italicized = secondary result

*MWH019*

# 1 - FORM I

## ANALYSIS DATA SHEET

18111402

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Water	Laboratory ID:	18L0444-02
		File ID:	S18L14012.D
Sampled:	12/11/18 10:00	Prepared:	12/13/18 11:17
		Analyzed:	12/14/18 13:07
Solids:		Preparation:	3510_B
		Dilution:	1
Initial/Final:	891.4 ml / 1 ml		
Batch:	B8L0446	Sequence:	S8L0194
		Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/L)	MDL	LOD	RL	Q
120-82-1	1,2,4-Trichlorobenzene		0.189	0.561	1.12	U
95-50-1	1,2-Dichlorobenzene		0.143	0.561	1.12	U
541-73-1	1,3-Dichlorobenzene		0.104	0.337	1.12	U
106-46-7	1,4-Dichlorobenzene		0.163	0.561	1.12	U
95-95-4	2,4,5-Trichlorophenol		0.145	0.561	1.12	U
88-06-2	2,4,6-Trichlorophenol		0.125	0.337	1.12	U
120-83-2	2,4-Dichlorophenol		0.0884	0.337	1.12	U
105-67-9	2,4-Dimethylphenol		0.132	0.337	1.12	U
51-28-5	2,4-Dinitrophenol		3.71	11.2	33.7	U
121-14-2	2,4-Dinitrotoluene		3.33	11.2	33.7	U
606-20-2	2,6-Dinitrotoluene		0.0575	0.224	0.561	U
91-58-7	2-Chloronaphthalene		0.160	0.561	1.12	U
95-57-8	2-Chlorophenol		0.121	0.337	1.12	U
91-57-6	2-Methylnaphthalene		0.159	0.561	2.24	U
95-48-7	2-Methylphenol		0.136	0.337	1.12	U
88-74-4	2-Nitroaniline		2.87	11.2	33.7	U
88-75-5	2-Nitrophenol		0.0881	0.337	1.12	U
91-94-1	3,3'-Dichlorobenzidine		8.72	22.4	33.7	U
84989-04-8	3 & 4-Methylphenol		0.201	0.561	1.12	U
99-09-2	3-Nitroaniline		0.164	0.561	1.12	U
534-52-1	4,6-Dinitro-2-methylphenol		2.75	5.61	16.8	U
101-55-3	4-Bromophenyl-phenylether		0.180	0.561	1.12	U
59-50-7	4-Chloro-3-methylphenol		0.0800	0.224	0.561	U
106-47-8	4-Chloroaniline		0.210	0.561	1.12	U
7005-72-3	4-Chlorophenyl-phenylether		0.163	0.561	1.12	U
100-01-6	4-Nitroaniline		4.23	11.2	33.7	U
100-02-7	4-Nitrophenol		1.61	5.61	16.8	U
83-32-9	Acenaphthene		0.180	0.561	1.12	U
208-96-8	Acenaphthylene		0.0897	1.12	2.24	U

*MW Hota*

# 1 - FORM I

## ANALYSIS DATA SHEET

18111402

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Water	Laboratory ID:	18L0444-02
Sampled:	12/11/18 10:00	Prepared:	12/13/18 11:17
Solids:		Preparation:	3510_B
Initial/Final:	891.4 ml / 1 ml	File ID:	S18L14012.D
Batch:	B8L0446	Sequence:	S8L0194
		Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/L)	MDL	LOD	RL	Q
120-12-7	Anthracene		0.107	0.337	1.12	U
103-33-3	Azobenzene as 1,2-Diphenylhydrazine		0.0860	0.337	1.12	U
92-87-5	Benzidine		7.68	22.4	33.7	U
56-55-3	Benzo(a)anthracene		0.157	0.561	1.12	U
50-32-8	Benzo(a)pyrene		0.102	0.337	2.24	U
205-99-2	Benzo(b)fluoranthene		0.124	0.337	2.24	U
191-24-2	Benzo(g,h,i)perylene		0.448	1.12	2.24	U
207-08-9	Benzo(k)fluoranthene		0.279	0.561	2.24	U
65-85-0	Benzoic acid		4.17	11.2	33.7	U
100-51-6	Benzyl alcohol		0.133	0.337	1.12	U
111-91-1	Bis(2-chloroethoxy)methane		0.142	0.561	1.12	U
111-44-4	Bis(2-chloroethyl)ether		0.163	0.561	1.12	U
108-60-1	Bis(2-chloroisopropyl)ether		0.144	0.561	1.12	U
117-81-7	Bis(2-ethylhexyl)phthalate		4.94	11.2	22.4	U
85-68-7	Butyl benzyl phthalate		0.105	0.337	1.12	U
86-74-8	Carbazole		0.0927	0.337	1.12	U
218-01-9	Chrysene		0.180	0.561	1.12	U
53-70-3	Dibenzo(a,h)anthracene		0.186	0.561	1.12	U
132-64-9	Dibenzofuran		0.199	0.561	1.12	U
84-66-2	Diethyl phthalate		0.165	0.561	1.12	U
131-11-3	Dimethyl phthalate		0.0860	0.337	1.12	U
84-74-2	Di-n-butyl phthalate		0.196	0.561	2.24	U
117-84-0	Di-n-octyl phthalate		3.42	11.2	33.7	U
206-44-0	Fluoranthene		0.145	0.561	1.12	U
86-73-7	Fluorene		0.155	0.561	1.12	U
118-74-1	Hexachlorobenzene		0.185	0.561	1.12	U
87-68-3	Hexachlorobutadiene		0.242	0.561	1.12	U
77-47-4	Hexachlorocyclopentadiene		2.45	5.61	16.8	U
67-72-1	Hexachloroethane		0.0874	0.337	1.12	U

*MW Hoya*

# 1 - FORM I

## ANALYSIS DATA SHEET

18111402

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Water	Laboratory ID:	18L0444-02
		File ID:	S18L14012.D
Sampled:	12/11/18 10:00	Prepared:	12/13/18 11:17
		Analyzed:	12/14/18 13:07
Solids:		Preparation:	3510_B
		Dilution:	1
Initial/Final:	891.4 ml / 1 ml		
Batch:	B8L0446	Sequence:	S8L0194
		Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/L)	MDL	LOD	RL	Q
193-39-5	Indeno(1,2,3-cd)pyrene		0.168	1.12	2.24	U
78-59-1	Isophorone		0.0864	0.337	1.12	U
91-20-3	Naphthalene		0.237	0.561	2.24	U
98-95-3	Nitrobenzene		0.170	0.561	1.12	U
62-75-9	N-Nitrosodimethylamine		0.611	2.24	5.61	U
621-64-7	N-Nitrosodi-n-propylamine		0.200	0.561	1.12	U
86-30-6	N-Nitrosodiphenylamine		0.111	0.337	1.12	U
87-86-5	Pentachlorophenol		2.83	11.2	33.7	U
85-01-8	Phenanthrene		0.219	0.561	2.24	U
108-95-2	Phenol		0.140	0.337	1.12	U
129-00-0	Pyrene		0.115	0.337	1.12	U

Italicized = secondary result

*MW Hols*

# 1 - FORM I ANALYSIS DATA SHEET

18111403

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Water	Laboratory ID:	18L0446-02
		File ID:	S18L14014.D
Sampled:	12/11/18 10:21	Prepared:	12/13/18 11:17
		Analyzed:	12/14/18 14:17
Solids:		Preparation:	3510_B
		Dilution:	1
Initial/Final:	832.8 ml / 1 ml		
Batch:	B8L0446	Sequence:	S8L0194
		Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/L)	MDL	LOD	RL	Q
120-82-1	1,2,4-Trichlorobenzene		0.202	0.600	1.20	U
95-50-1	1,2-Dichlorobenzene		0.153	0.600	1.20	U
541-73-1	1,3-Dichlorobenzene		0.111	0.360	1.20	U
106-46-7	1,4-Dichlorobenzene		0.174	0.600	1.20	U
95-95-4	2,4,5-Trichlorophenol		0.155	0.600	1.20	U
88-06-2	2,4,6-Trichlorophenol		0.133	0.360	1.20	U
120-83-2	2,4-Dichlorophenol		0.0946	0.360	1.20	U
105-67-9	2,4-Dimethylphenol		0.141	0.360	1.20	U
51-28-5	2,4-Dinitrophenol		3.97	12.0	36.0	U
121-14-2	2,4-Dinitrotoluene		3.57	12.0	36.0	U
606-20-2	2,6-Dinitrotoluene		0.0616	0.240	0.600	U
91-58-7	2-Chloronaphthalene		0.171	0.600	1.20	U
95-57-8	2-Chlorophenol		0.130	0.360	1.20	U
91-57-6	2-Methylnaphthalene		0.170	0.600	2.40	U
95-48-7	2-Methylphenol		0.145	0.360	1.20	U
88-74-4	2-Nitroaniline		3.08	12.0	36.0	U
88-75-5	2-Nitrophenol		0.0943	0.360	1.20	U
91-94-1	3,3'-Dichlorobenzidine		9.33	24.0	36.0	U
84989-04-8	3 & 4-Methylphenol		0.215	0.600	1.20	U
99-09-2	3-Nitroaniline		0.175	0.600	1.20	U
534-52-1	4,6-Dinitro-2-methylphenol		2.94	6.00	18.0	U
101-55-3	4-Bromophenyl-phenylether		0.192	0.600	1.20	U
59-50-7	4-Chloro-3-methylphenol		0.0856	0.240	0.600	U
106-47-8	4-Chloroaniline		0.225	0.600	1.20	U
7005-72-3	4-Chlorophenyl-phenylether		0.175	0.600	1.20	U
100-01-6	4-Nitroaniline		4.53	12.0	36.0	U
100-02-7	4-Nitrophenol		1.73	6.00	18.0	U
83-32-9	Acenaphthene		0.192	0.600	1.20	U
208-96-8	Acenaphthylene		0.0961	1.20	2.40	U

*MW 1-10-19*

# 1 - FORM I

## ANALYSIS DATA SHEET

18111403

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Water	Laboratory ID:	18L0446-02
Sampled:	12/11/18 10:21	Prepared:	12/13/18 11:17
Solids:		Preparation:	3510_B
Initial/Final:	832.8 ml / 1 ml	Analyzed:	12/14/18 14:17
Batch:	B8L0446	Dilution:	1
Sequence:	S8L0194	Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/L)	MDL	LOD	RL	Q
120-12-7	Anthracene		0.115	0.360	1.20	U
103-33-3	Azobenzene as 1,2-Diphenylhydrazine		0.0921	0.360	1.20	U
92-87-5	Benzidine		8.22	24.0	36.0	U
56-55-3	Benzo(a)anthracene		0.168	0.600	1.20	U
50-32-8	Benzo(a)pyrene		0.109	0.360	2.40	U
205-99-2	Benzo(b)fluoranthene		0.132	0.360	2.40	U
191-24-2	Benzo(g,h,i)perylene		0.480	1.20	2.40	U
207-08-9	Benzo(k)fluoranthene		0.299	0.600	2.40	U
65-85-0	Benzoic acid		4.47	12.0	36.0	U
100-51-6	Benzyl alcohol		0.143	0.360	1.20	U
111-91-1	Bis(2-chloroethoxy)methane		0.152	0.600	1.20	U
111-44-4	Bis(2-chloroethyl)ether		0.174	0.600	1.20	U
108-60-1	Bis(2-chloroisopropyl)ether		0.154	0.600	1.20	U
117-81-7	Bis(2-ethylhexyl)phthalate		5.29	12.0	24.0	U
85-68-7	Butyl benzyl phthalate		0.112	0.360	1.20	U
86-74-8	Carbazole		0.0992	0.360	1.20	U
218-01-9	Chrysene		0.193	0.600	1.20	U
53-70-3	Dibenzo(a,h)anthracene		0.200	0.600	1.20	U
132-64-9	Dibenzofuran		0.213	0.600	1.20	U
84-66-2	Diethyl phthalate		0.177	0.600	1.20	U
131-11-3	Dimethyl phthalate		0.0921	0.360	1.20	U
84-74-2	Di-n-butyl phthalate		0.210	0.600	2.40	U
117-84-0	Di-n-octyl phthalate		3.66	12.0	36.0	U
206-44-0	Fluoranthene		0.155	0.600	1.20	U
86-73-7	Fluorene		0.166	0.600	1.20	U
118-74-1	Hexachlorobenzene		0.198	0.600	1.20	U
87-68-3	Hexachlorobutadiene		0.259	0.600	1.20	U
77-47-4	Hexachlorocyclopentadiene		2.63	6.00	18.0	U
67-72-1	Hexachloroethane		0.0935	0.360	1.20	U

*MW Hoya*



# 1 - FORM I

## ANALYSIS DATA SHEET

18111403

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Water	Laboratory ID:	18L0446-02
		File ID:	S18L14014.D
Sampled:	12/11/18 10:21	Prepared:	12/13/18 11:17
		Analyzed:	12/14/18 14:17
Solids:		Preparation:	3510_B
		Dilution:	1
Initial/Final:	832.8 ml / 1 ml		
Batch:	B8L0446	Sequence:	S8L0194
		Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/L)	MDL	LOD	RL	Q
193-39-5	Indeno(1,2,3-cd)pyrene		0.180	1.20	2.40	U
78-59-1	Isophorone		0.0925	0.360	1.20	U
91-20-3	Naphthalene		0.254	0.600	2.40	U
98-95-3	Nitrobenzene		0.182	0.600	1.20	U
62-75-9	N-Nitrosodimethylamine		0.654	2.40	6.00	U
621-64-7	N-Nitrosodi-n-propylamine		0.214	0.600	1.20	U
86-30-6	N-Nitrosodiphenylamine		0.119	0.360	1.20	U
87-86-5	Pentachlorophenol		3.03	12.0	36.0	U
85-01-8	Phenanthrene		0.234	0.600	2.40	U
108-95-2	Phenol		0.150	0.360	1.20	U
129-00-0	Pyrene		0.123	0.360	1.20	U

Italicized = secondary result

*MW-H-19*

# 1 - FORM I

## ANALYSIS DATA SHEET

18111404

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Water	Laboratory ID:	18L0446-01
		File ID:	S18L14013.D
Sampled:	12/11/18 11:27	Prepared:	12/13/18 11:17
		Analyzed:	12/14/18 13:42
Solids:		Preparation:	3510_B
		Dilution:	1
Initial/Final:	931.4 ml / 1 ml		
Batch:	B8L0446	Sequence:	S8L0194
		Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/L)	MDL	LOD	RL	Q
120-82-1	1,2,4-Trichlorobenzene		0.180	0.537	1.07	U
95-50-1	1,2-Dichlorobenzene	0.183	0.137	0.537	1.07	JQ
541-73-1	1,3-Dichlorobenzene	0.215	0.0991	0.322	1.07	J
106-46-7	1,4-Dichlorobenzene	0.215	0.156	0.537	1.07	J
95-95-4	2,4,5-Trichlorophenol		0.139	0.537	1.07	U
88-06-2	2,4,6-Trichlorophenol		0.119	0.322	1.07	U
120-83-2	2,4-Dichlorophenol		0.0846	0.322	1.07	U
105-67-9	2,4-Dimethylphenol		0.126	0.322	1.07	U
51-28-5	2,4-Dinitrophenol		3.55	10.7	32.2	U
121-14-2	2,4-Dinitrotoluene		3.19	10.7	32.2	U
606-20-2	2,6-Dinitrotoluene		0.0551	0.215	0.537	U
91-58-7	2-Chloronaphthalene		0.153	0.537	1.07	U
95-57-8	2-Chlorophenol		0.116	0.322	1.07	U
91-57-6	2-Methylnaphthalene		0.152	0.537	2.15	U
95-48-7	2-Methylphenol		0.130	0.322	1.07	U
88-74-4	2-Nitroaniline		2.75	10.7	32.2	U
88-75-5	2-Nitrophenol		0.0843	0.322	1.07	U
91-94-1	3,3'-Dichlorobenzidine		8.35	21.5	32.2	U
84989-04-8	3 & 4-Methylphenol		0.192	0.537	1.07	U
99-09-2	3-Nitroaniline		0.157	0.537	1.07	U
534-52-1	4,6-Dinitro-2-methylphenol		2.63	5.37	16.1	U
101-55-3	4-Bromophenyl-phenylether		0.172	0.537	1.07	U
59-50-7	4-Chloro-3-methylphenol		0.0766	0.215	0.537	U
106-47-8	4-Chloroaniline		0.201	0.537	1.07	U
7005-72-3	4-Chlorophenyl-phenylether		0.156	0.537	1.07	U
100-01-6	4-Nitroaniline		4.05	10.7	32.2	U
100-02-7	4-Nitrophenol		1.54	5.37	16.1	U
83-32-9	Acenaphthene		0.172	0.537	1.07	U
208-96-8	Acenaphthylene		0.0859	1.07	2.15	U

MW H-19

# 1 - FORM I

## ANALYSIS DATA SHEET

18111404

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Water	Laboratory ID:	18L0446-01
Sampled:	12/11/18 11:27	Prepared:	12/13/18 11:17
Solids:		Preparation:	3510_B
Initial/Final:	931.4 ml / 1 ml	Analyzed:	12/14/18 13:42
Batch:	B8L0446	Dilution:	1
Sequence:	S8L0194	Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/L)	MDL	LOD	RL	Q
120-12-7	Anthracene		0.103	0.322	1.07	U
103-33-3	Azobenzene as 1,2-Diphenylhydrazine		0.0823	0.322	1.07	U
92-87-5	Benzidine		7.35	21.5	32.2	U
56-55-3	Benzo(a)anthracene		0.150	0.537	1.07	U
50-32-8	Benzo(a)pyrene		0.0972	0.322	2.15	U
205-99-2	Benzo(b)fluoranthene		0.118	0.322	2.15	U
191-24-2	Benzo(g,h,i)perylene		0.429	1.07	2.15	U
207-08-9	Benzo(k)fluoranthene		0.267	0.537	2.15	U
65-85-0	Benzoic acid		3.99	10.7	32.2	U
100-51-6	Benzyl alcohol		0.128	0.322	1.07	U
111-91-1	Bis(2-chloroethoxy)methane		0.136	0.537	1.07	U
111-44-4	Bis(2-chloroethyl)ether		0.156	0.537	1.07	U
108-60-1	Bis(2-chloroisopropyl)ether		0.138	0.537	1.07	U
117-81-7	Bis(2-ethylhexyl)phthalate		4.73	10.7	21.5	U
85-68-7	Butyl benzyl phthalate		0.100	0.322	1.07	U
86-74-8	Carbazole		0.0887	0.322	1.07	U
218-01-9	Chrysene		0.173	0.537	1.07	U
53-70-3	Dibenzo(a,h)anthracene		0.178	0.537	1.07	U
132-64-9	Dibenzofuran		0.190	0.537	1.07	U
84-66-2	Diethyl phthalate		0.158	0.537	1.07	U
131-11-3	Dimethyl phthalate		0.0823	0.322	1.07	U
84-74-2	Di-n-butyl phthalate		0.188	0.537	2.15	U
117-84-0	Di-n-octyl phthalate		3.27	10.7	32.2	U
206-44-0	Fluoranthene		0.139	0.537	1.07	U
86-73-7	Fluorene		0.148	0.537	1.07	U
118-74-1	Hexachlorobenzene		0.177	0.537	1.07	U
87-68-3	Hexachlorobutadiene		0.232	0.537	1.07	U
77-47-4	Hexachlorocyclopentadiene		2.35	5.37	16.1	U
67-72-1	Hexachloroethane	0.236	0.0836	0.322	1.07	U

JQ  
mw 14019

# 1 - FORM I

## ANALYSIS DATA SHEET

18111404

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Water	Laboratory ID:	18L0446-01
		File ID:	S18L14013.D
Sampled:	12/11/18 11:27	Prepared:	12/13/18 11:17
		Analyzed:	12/14/18 13:42
Solids:		Preparation:	3510_B
		Dilution:	1
Initial/Final:	931.4 ml / 1 ml		
Batch:	B8L0446	Sequence:	S8L0194
		Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/L)	MDL	LOD	RL	Q
193-39-5	Indeno(1,2,3-cd)pyrene		0.161	1.07	2.15	U
78-59-1	Isophorone		0.0827	0.322	1.07	U
91-20-3	Naphthalene		0.227	0.537	2.15	U
98-95-3	Nitrobenzene		0.163	0.537	1.07	U
62-75-9	N-Nitrosodimethylamine		0.585	2.15	5.37	U
621-64-7	N-Nitrosodi-n-propylamine		0.192	0.537	1.07	U
86-30-6	N-Nitrosodiphenylamine		0.106	0.322	1.07	U
87-86-5	Pentachlorophenol		2.71	10.7	32.2	U
85-01-8	Phenanthrene		0.210	0.537	2.15	U
108-95-2	Phenol		0.134	0.322	1.07	U
129-00-0	Pyrene		0.110	0.322	1.07	U

Italicized = secondary result

*MW 10-19*

# 1 - FORM I

## ANALYSIS DATA SHEET

18111405

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Water	Laboratory ID:	18L0447-01
Sampled:	12/11/18 10:51	Prepared:	12/13/18 11:17
Solids:		Preparation:	3510_B
Initial/Final:	986.9 ml / 1 ml	File ID:	S18L14015.D
Batch:	B8L0446	Analyzed:	12/14/18 14:52
		Dilution:	1
Sequence:	S8L0194	Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/L)	MDL	LOD	RL	Q
120-82-1	1,2,4-Trichlorobenzene		0.170	0.507	1.01	U
95-50-1	1,2-Dichlorobenzene		0.129	0.507	1.01	U
541-73-1	1,3-Dichlorobenzene		0.0935	0.304	1.01	U
106-46-7	1,4-Dichlorobenzene		0.147	0.507	1.01	U
95-95-4	2,4,5-Trichlorophenol		0.131	0.507	1.01	U
88-06-2	2,4,6-Trichlorophenol		0.112	0.304	1.01	U
120-83-2	2,4-Dichlorophenol		0.0798	0.304	1.01	U
105-67-9	2,4-Dimethylphenol		0.119	0.304	1.01	U
51-28-5	2,4-Dinitrophenol		3.35	10.1	30.4	U
121-14-2	2,4-Dinitrotoluene		3.01	10.1	30.4	U
606-20-2	2,6-Dinitrotoluene		0.0520	0.203	0.507	U
91-58-7	2-Chloronaphthalene		0.144	0.507	1.01	U
95-57-8	2-Chlorophenol		0.109	0.304	1.01	U
91-57-6	2-Methylnaphthalene		0.143	0.507	2.03	U
95-48-7	2-Methylphenol		0.123	0.304	1.01	U
88-74-4	2-Nitroaniline		2.60	10.1	30.4	U
88-75-5	2-Nitrophenol		0.0795	0.304	1.01	U
91-94-1	3,3'-Dichlorobenzidine		7.88	20.3	30.4	U
84989-04-8	3 & 4-Methylphenol		0.181	0.507	1.01	U
99-09-2	3-Nitroaniline		0.148	0.507	1.01	U
534-52-1	4,6-Dinitro-2-methylphenol		2.48	5.07	15.2	U
101-55-3	4-Bromophenyl-phenylether		0.162	0.507	1.01	U
59-50-7	4-Chloro-3-methylphenol		0.0722	0.203	0.507	U
106-47-8	4-Chloroaniline		0.190	0.507	1.01	U
7005-72-3	4-Chlorophenyl-phenylether		0.148	0.507	1.01	U
100-01-6	4-Nitroaniline		3.82	10.1	30.4	U
100-02-7	4-Nitrophenol		1.46	5.07	15.2	U
83-32-9	Acenaphthene		0.162	0.507	1.01	U
208-96-8	Acenaphthylene		0.0811	1.01	2.03	U

*MW Hota*

# 1 - FORM I

## ANALYSIS DATA SHEET

18111405

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Water	Laboratory ID:	18L0447-01
		File ID:	S18L14015.D
Sampled:	12/11/18 10:51	Prepared:	12/13/18 11:17
		Analyzed:	12/14/18 14:52
Solids:		Preparation:	3510_B
		Dilution:	1
Initial/Final:	986.9 ml / 1 ml		
Batch:	B8L0446	Sequence:	S8L0194
		Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/L)	MDL	LOD	RL	Q
120-12-7	Anthracene		0.0968	0.304	1.01	U
103-33-3	Azobenzene as 1,2-Diphenylhydrazine		0.0777	0.304	1.01	U
92-87-5	Benzidine		6.94	20.3	30.4	U
56-55-3	Benzo(a)anthracene		0.142	0.507	1.01	U
50-32-8	Benzo(a)pyrene		0.0917	0.304	2.03	U
205-99-2	Benzo(b)fluoranthene		0.112	0.304	2.03	U
191-24-2	Benzo(g,h,i)perylene		0.405	1.01	2.03	U
207-08-9	Benzo(k)fluoranthene		0.252	0.507	2.03	U
65-85-0	Benzoic acid		3.77	10.1	30.4	U
100-51-6	Benzyl alcohol		0.120	0.304	1.01	U
111-91-1	Bis(2-chloroethoxy)methane		0.128	0.507	1.01	U
111-44-4	Bis(2-chloroethyl)ether		0.147	0.507	1.01	U
108-60-1	Bis(2-chloroisopropyl)ether		0.130	0.507	1.01	U
117-81-7	Bis(2-ethylhexyl)phthalate		4.46	10.1	20.3	U
85-68-7	Butyl benzyl phthalate		0.0945	0.304	1.01	U
86-74-8	Carbazole		0.0837	0.304	1.01	U
218-01-9	Chrysene		0.163	0.507	1.01	U
53-70-3	Dibenzo(a,h)anthracene		0.168	0.507	1.01	U
132-64-9	Dibenzofuran		0.180	0.507	1.01	U
84-66-2	Diethyl phthalate		0.149	0.507	1.01	U
131-11-3	Dimethyl phthalate		0.0777	0.304	1.01	U
84-74-2	Di-n-butyl phthalate		0.177	0.507	2.03	U
117-84-0	Di-n-octyl phthalate		3.09	10.1	30.4	U
206-44-0	Fluoranthene		0.131	0.507	1.01	U
86-73-7	Fluorene		0.140	0.507	1.01	U
118-74-1	Hexachlorobenzene		0.167	0.507	1.01	U
87-68-3	Hexachlorobutadiene		0.219	0.507	1.01	U
77-47-4	Hexachlorocyclopentadiene		2.22	5.07	15.2	U
67-72-1	Hexachloroethane		0.0789	0.304	1.01	U

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# 1 - FORM I

## ANALYSIS DATA SHEET

18111405

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Water	Laboratory ID:	18L0447-01
		File ID:	S18L14015.D
Sampled:	12/11/18 10:51	Prepared:	12/13/18 11:17
		Analyzed:	12/14/18 14:52
Solids:		Preparation:	3510_B
		Dilution:	1
Initial/Final:	986.9 ml / 1 ml		
Batch:	B8L0446	Sequence:	S8L0194
		Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/L)	MDL	LOD	RL	Q
193-39-5	Indeno(1,2,3-cd)pyrene		0.152	1.01	2.03	U
78-59-1	Isophorone		0.0780	0.304	1.01	U
91-20-3	Naphthalene		0.214	0.507	2.03	U
98-95-3	Nitrobenzene		0.154	0.507	1.01	U
62-75-9	N-Nitrosodimethylamine		0.552	2.03	5.07	U
621-64-7	N-Nitrosodi-n-propylamine		0.181	0.507	1.01	U
86-30-6	N-Nitrosodiphenylamine		0.100	0.304	1.01	U
87-86-5	Pentachlorophenol		2.55	10.1	30.4	U
85-01-8	Phenanthrene		0.198	0.507	2.03	U
108-95-2	Phenol		0.127	0.304	1.01	U
129-00-0	Pyrene		0.104	0.304	1.01	U

Italicized = secondary result

*MW H19*

# 1 - FORM I

## ANALYSIS DATA SHEET

18111406

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Water	Laboratory ID:	18L0447-02
		File ID:	S18L14016.D
Sampled:	12/11/18 11:00	Prepared:	12/13/18 18:00
		Analyzed:	12/14/18 18:57
Solids:		Preparation:	3510_B
		Dilution:	1
Initial/Final:	1011.7 ml / 1 ml		
Batch:	B8L0446	Sequence:	S8L0194
		Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/L)	MDL	LOD	RL	Q
120-82-1	1,2,4-Trichlorobenzene		0.166	0.494	0.988	U
95-50-1	1,2-Dichlorobenzene		0.126	0.494	0.988	U
541-73-1	1,3-Dichlorobenzene		0.0912	0.297	0.988	U
106-46-7	1,4-Dichlorobenzene		0.144	0.494	0.988	U
95-95-4	2,4,5-Trichlorophenol		0.128	0.494	0.988	U
88-06-2	2,4,6-Trichlorophenol		0.110	0.297	0.988	U
120-83-2	2,4-Dichlorophenol		0.0779	0.297	0.988	U
105-67-9	2,4-Dimethylphenol		0.116	0.297	0.988	U
51-28-5	2,4-Dinitrophenol		3.27	9.88	29.7	U
121-14-2	2,4-Dinitrotoluene		2.94	9.88	29.7	U
606-20-2	2,6-Dinitrotoluene		0.0507	0.198	0.494	U
91-58-7	2-Chloronaphthalene		0.141	0.494	0.988	U
95-57-8	2-Chlorophenol		0.107	0.297	0.988	U
91-57-6	2-Methylnaphthalene		0.140	0.494	1.98	U
95-48-7	2-Methylphenol		0.120	0.297	0.988	U
88-74-4	2-Nitroaniline		2.53	9.88	29.7	U
88-75-5	2-Nitrophenol		0.0776	0.297	0.988	U
91-94-1	3,3'-Dichlorobenzidine		7.68	19.8	29.7	U
84989-04-8	3 & 4-Methylphenol		0.177	0.494	0.988	U
99-09-2	3-Nitroaniline		0.144	0.494	0.988	U
534-52-1	4,6-Dinitro-2-methylphenol		2.42	4.94	14.8	U
101-55-3	4-Bromophenyl-phenylether		0.158	0.494	0.988	U
59-50-7	4-Chloro-3-methylphenol		0.0705	0.198	0.494	U
106-47-8	4-Chloroaniline		0.185	0.494	0.988	U
7005-72-3	4-Chlorophenyl-phenylether		0.144	0.494	0.988	U
100-01-6	4-Nitroaniline		3.73	9.88	29.7	U
100-02-7	4-Nitrophenol		1.42	4.94	14.8	U
83-32-9	Acenaphthene		0.158	0.494	0.988	U
208-96-8	Acenaphthylene		0.0791	0.988	1.98	U

*Mw H019*



# 1 - FORM I

## ANALYSIS DATA SHEET

18111406

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Water	Laboratory ID:	18L0447-02
		File ID:	S18L14016.D
Sampled:	12/11/18 11:00	Prepared:	12/13/18 18:00
		Analyzed:	12/14/18 18:57
Solids:		Preparation:	3510_B
		Dilution:	1
Initial/Final:	1011.7 ml / 1 ml		
Batch:	B8L0446	Sequence:	S8L0194
		Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/L)	MDL	LOD	RL	Q.
120-12-7	Anthracene		0.0944	0.297	0.988	U
103-33-3	Azobenzene as 1,2-Diphenylhydrazine		0.0758	0.297	0.988	U
92-87-5	Benzidine		6.77	19.8	29.7	U
56-55-3	Benzo(a)anthracene		0.138	0.494	0.988	U
50-32-8	Benzo(a)pyrene		0.0895	0.297	1.98	U
205-99-2	Benzo(b)fluoranthene		0.109	0.297	1.98	U
191-24-2	Benzo(g,h,i)perylene		0.395	0.988	1.98	U
207-08-9	Benzo(k)fluoranthene		0.246	0.494	1.98	U
65-85-0	Benzoic acid		3.68	9.88	29.7	U
100-51-6	Benzyl alcohol		0.117	0.297	0.988	U
111-91-1	Bis(2-chloroethoxy)methane		0.125	0.494	0.988	U
111-44-4	Bis(2-chloroethyl)ether		0.143	0.494	0.988	U
108-60-1	Bis(2-chloroisopropyl)ether		0.127	0.494	0.988	U
117-81-7	Bis(2-ethylhexyl)phthalate		4.35	9.88	19.8	U
85-68-7	Butyl benzyl phthalate		0.0922	0.297	0.988	U
86-74-8	Carbazole		0.0816	0.297	0.988	U
218-01-9	Chrysene		0.159	0.494	0.988	U
53-70-3	Dibenzo(a,h)anthracene		0.164	0.494	0.988	U
132-64-9	Dibenzofuran		0.175	0.494	0.988	U
84-66-2	Diethyl phthalate		0.145	0.494	0.988	U
131-11-3	Dimethyl phthalate		0.0758	0.297	0.988	U
84-74-2	Di-n-butyl phthalate		0.173	0.494	1.98	U
117-84-0	Di-n-octyl phthalate		3.01	9.88	29.7	U
206-44-0	Fluoranthene		0.128	0.494	0.988	U
86-73-7	Fluorene		0.136	0.494	0.988	U
118-74-1	Hexachlorobenzene		0.163	0.494	0.988	U
87-68-3	Hexachlorobutadiene		0.213	0.494	0.988	U
77-47-4	Hexachlorocyclopentadiene		2.16	4.94	14.8	U
67-72-1	Hexachloroethane		0.0770	0.297	0.988	U

*MW H-10*

# 1 - FORM I

## ANALYSIS DATA SHEET

18111406

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Water	Laboratory ID:	18L0447-02
		File ID:	S18L14016.D
Sampled:	12/11/18 11:00	Prepared:	12/13/18 18:00
		Analyzed:	12/14/18 18:57
Solids:		Preparation:	3510_B
		Dilution:	1
Initial/Final:	1011.7 ml / 1 ml		
Batch:	B8L0446	Sequence:	S8L0194
		Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/L)	MDL	LOD	RL	Q
193-39-5	Indeno(1,2,3-cd)pyrene		0.148	0.988	1.98	U
78-59-1	Isophorone		0.0761	0.297	0.988	U
91-20-3	Naphthalene		0.209	0.494	1.98	U
98-95-3	Nitrobenzene		0.150	0.494	0.988	U
62-75-9	N-Nitrosodimethylamine		0.539	1.98	4.94	U
621-64-7	N-Nitrosodi-n-propylamine		0.176	0.494	0.988	U
86-30-6	N-Nitrosodiphenylamine		0.0978	0.297	0.988	U
87-86-5	Pentachlorophenol		2.49	9.88	29.7	U
85-01-8	Phenanthrene		0.193	0.494	1.98	U
108-95-2	Phenol		0.124	0.297	0.988	U
129-00-0	Pyrene		0.101	0.297	0.988	U

Italicized = secondary result

*MWH-019*

# 1 - FORM I

## ANALYSIS DATA SHEET

18111408

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Water	Laboratory ID:	18L0489-01
		File ID:	S18L17009.D
Sampled:	12/11/18 14:37	Prepared:	12/17/18 10:06
		Analyzed:	12/17/18 18:10
Solids:		Preparation:	3510_B
		Dilution:	1
Initial/Final:	1040.5 ml / 1 ml		
Batch:	B8L0519	Sequence:	S8L0238
		Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/L)	MDL	LOD	RL	Q
120-82-1	1,2,4-Trichlorobenzene		0.162	0.481	0.961	U
95-50-1	1,2-Dichlorobenzene		0.123	0.481	0.961	U
541-73-1	1,3-Dichlorobenzene		0.0887	0.288	0.961	U
106-46-7	1,4-Dichlorobenzene		0.140	0.481	0.961	U
95-95-4	2,4,5-Trichlorophenol		0.124	0.481	0.961	U
88-06-2	2,4,6-Trichlorophenol		0.107	0.288	0.961	U
120-83-2	2,4-Dichlorophenol		0.0757	0.288	0.961	U
105-67-9	2,4-Dimethylphenol		0.113	0.288	0.961	U
51-28-5	2,4-Dinitrophenol		3.18	9.61	28.8	U
121-14-2	2,4-Dinitrotoluene		2.86	9.61	28.8	U
606-20-2	2,6-Dinitrotoluene		0.0493	0.192	0.481	U
91-58-7	2-Chloronaphthalene		0.137	0.481	0.961	U
95-57-8	2-Chlorophenol		0.104	0.288	0.961	U
91-57-6	2-Methylnaphthalene		0.136	0.481	1.92	U
95-48-7	2-Methylphenol		0.116	0.288	0.961	U
88-74-4	2-Nitroaniline		2.46	9.61	28.8	U
88-75-5	2-Nitrophenol		0.0754	0.288	0.961	U
91-94-1	3,3'-Dichlorobenzidine		7.47	19.2	28.8	U
84989-04-8	3 & 4-Methylphenol		0.172	0.481	0.961	U
99-09-2	3-Nitroaniline		0.140	0.481	0.961	U
534-52-1	4,6-Dinitro-2-methylphenol		2.36	4.81	14.4	U
101-55-3	4-Bromophenyl-phenylether		0.154	0.481	0.961	U
59-50-7	4-Chloro-3-methylphenol		0.0685	0.192	0.481	U
106-47-8	4-Chloroaniline		0.180	0.481	0.961	U
7005-72-3	4-Chlorophenyl-phenylether		0.140	0.481	0.961	U
100-01-6	4-Nitroaniline		3.63	9.61	28.8	U
100-02-7	4-Nitrophenol		1.38	4.81	14.4	U
83-32-9	Acenaphthene		0.154	0.481	0.961	U
208-96-8	Acenaphthylene		0.0769	0.961	1.92	U

*W H 19*

# 1 - FORM I

## ANALYSIS DATA SHEET

18111408

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Water	Laboratory ID:	18L0489-01
		File ID:	S18L17009.D
Sampled:	12/11/18 14:37	Prepared:	12/17/18 10:06
		Analyzed:	12/17/18 18:10
Solids:		Preparation:	3510_B
		Dilution:	1
Initial/Final:	1040.5 ml / 1 ml		
Batch:	B8L0519	Sequence:	S8L0238
		Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/L)	MDL	LOD	RL	Q
120-12-7	Anthracene		0.0918	0.288	0.961	U
103-33-3	Azobenzene as 1,2-Diphenylhydrazine		0.0737	0.288	0.961	U
92-87-5	Benzidine		6.58	19.2	28.8	U
56-55-3	Benzo(a)anthracene		0.134	0.481	0.961	U
50-32-8	Benzo(a)pyrene		0.0870	0.288	1.92	U
205-99-2	Benzo(b)fluoranthene		0.106	0.288	1.92	U
191-24-2	Benzo(g,h,i)perylene		0.384	0.961	1.92	U
207-08-9	Benzo(k)fluoranthene		0.239	0.481	1.92	U
65-85-0	Benzoic acid		3.57	9.61	28.8	U
100-51-6	Benzyl alcohol		0.114	0.288	0.961	U
111-91-1	Bis(2-chloroethoxy)methane		0.121	0.481	0.961	U
111-44-4	Bis(2-chloroethyl)ether		0.139	0.481	0.961	U
108-60-1	Bis(2-chloroisopropyl)ether		0.123	0.481	0.961	U
117-81-7	Bis(2-ethylhexyl)phthalate		4.23	9.61	19.2	U
85-68-7	Butyl benzyl phthalate		0.0897	0.288	0.961	U
86-74-8	Carbazole		0.0794	0.288	0.961	U
218-01-9	Chrysene		0.154	0.481	0.961	U
53-70-3	Dibenzo(a,h)anthracene		0.160	0.481	0.961	U
132-64-9	Dibenzofuran		0.170	0.481	0.961	U
84-66-2	Diethyl phthalate		0.141	0.481	0.961	U
131-11-3	Dimethyl phthalate		0.0737	0.288	0.961	U
84-74-2	Di-n-butyl phthalate		0.168	0.481	1.92	U
117-84-0	Di-n-octyl phthalate		2.93	9.61	28.8	U
206-44-0	Fluoranthene		0.124	0.481	0.961	U
86-73-7	Fluorene		0.133	0.481	0.961	U
118-74-1	Hexachlorobenzene		0.159	0.481	0.961	U
87-68-3	Hexachlorobutadiene		0.207	0.481	0.961	U
77-47-4	Hexachlorocyclopentadiene		2.10	4.81	14.4	U
67-72-1	Hexachloroethane		0.0749	0.288	0.961	U

*MW H019*

# 1 - FORM I

## ANALYSIS DATA SHEET

18111408

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Water	Laboratory ID:	18L0489-01
		File ID:	S18L17009.D
Sampled:	12/11/18 14:37	Prepared:	12/17/18 10:06
		Analyzed:	12/17/18 18:10
Solids:		Preparation:	3510_B
		Dilution:	1
Initial/Final:	1040.5 ml / 1 ml		
Batch:	B8L0519	Sequence:	S8L0238
		Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/L)	MDL	LOD	RL	Q
193-39-5	Indeno(1,2,3-cd)pyrene		0.144	0.961	1.92	U
78-59-1	Isophorone		0.0740	0.288	0.961	U
91-20-3	Naphthalene		0.203	0.481	1.92	U
98-95-3	Nitrobenzene		0.146	0.481	0.961	U
62-75-9	N-Nitrosodimethylamine		0.524	1.92	4.81	U
621-64-7	N-Nitrosodi-n-propylamine		0.172	0.481	0.961	U
86-30-6	N-Nitrosodiphenylamine		0.0951	0.288	0.961	U
87-86-5	Pentachlorophenol		2.42	9.61	28.8	U
85-01-8	Phenanthrene		0.188	0.481	1.92	U
108-95-2	Phenol		0.120	0.288	0.961	U
129-00-0	Pyrene		0.0984	0.288	0.961	U

Italicized = secondary result

*Mw Ho-19*

# 1 - FORM I

## ANALYSIS DATA SHEET

18111409

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Water	Laboratory ID:	18L0491-01
		File ID:	S18L17013.D
Sampled:	12/11/18 00:00	Prepared:	12/17/18 10:06
		Analyzed:	12/17/18 20:24
Solids:		Preparation:	3510_B
		Dilution:	1
Initial/Final:	1054.1 ml / 1 ml		
Batch:	B8L0519	Sequence:	S8L0238
		Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/L)	MDL	LOD	RL	Q
120-82-1	1,2,4-Trichlorobenzene		0.159	0.474	0.949	U
95-50-1	1,2-Dichlorobenzene		0.121	0.474	0.949	U
541-73-1	1,3-Dichlorobenzene		0.0876	0.285	0.949	U
106-46-7	1,4-Dichlorobenzene		0.138	0.474	0.949	U
95-95-4	2,4,5-Trichlorophenol		0.123	0.474	0.949	U
88-06-2	2,4,6-Trichlorophenol		0.105	0.285	0.949	U
120-83-2	2,4-Dichlorophenol		0.0748	0.285	0.949	U
105-67-9	2,4-Dimethylphenol		0.111	0.285	0.949	U
51-28-5	2,4-Dinitrophenol		3.14	9.49	28.5	U
121-14-2	2,4-Dinitrotoluene		2.82	9.49	28.5	U
606-20-2	2,6-Dinitrotoluene		0.0487	0.190	0.474	U
91-58-7	2-Chloronaphthalene		0.135	0.474	0.949	U
95-57-8	2-Chlorophenol		0.102	0.285	0.949	U
91-57-6	2-Methylnaphthalene		0.134	0.474	1.90	U
95-48-7	2-Methylphenol		0.115	0.285	0.949	U
88-74-4	2-Nitroaniline		2.43	9.49	28.5	U
88-75-5	2-Nitrophenol		0.0745	0.285	0.949	U
91-94-1	3,3'-Dichlorobenzidine		7.37	19.0	28.5	U
84989-04-8	3 & 4-Methylphenol		0.170	0.474	0.949	U
99-09-2	3-Nitroaniline		0.139	0.474	0.949	U
534-52-1	4,6-Dinitro-2-methylphenol		2.33	4.74	14.2	U
101-55-3	4-Bromophenyl-phenylether		0.152	0.474	0.949	U
59-50-7	4-Chloro-3-methylphenol		0.0676	0.190	0.474	U
106-47-8	4-Chloroaniline		0.178	0.474	0.949	U
7005-72-3	4-Chlorophenyl-phenylether		0.138	0.474	0.949	U
100-01-6	4-Nitroaniline		3.58	9.49	28.5	U
100-02-7	4-Nitrophenol		1.36	4.74	14.2	U
83-32-9	Acenaphthene		0.152	0.474	0.949	U
208-96-8	Acenaphthylene		0.0759	0.949	1.90	U

*MW H019*

# 1 - FORM I

## ANALYSIS DATA SHEET

18111409

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Water	Laboratory ID:	18L0491-01
Sampled:	12/11/18 00:00	Prepared:	12/17/18 10:06
Solids:		Preparation:	3510_B
Initial/Final:	1054.1 ml / 1 ml	Analyzed:	12/17/18 20:24
Batch:	B8L0519	Dilution:	1
Sequence:	S8L0238	Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/L)	MDL	LOD	RL	Q
120-12-7	Anthracene		0.0906	0.285	0.949	U
103-33-3	Azobenzene as 1,2-Diphenylhydrazine		0.0728	0.285	0.949	U
92-87-5	Benzidine		6.49	19.0	28.5	U
56-55-3	Benzo(a)anthracene		0.133	0.474	0.949	U
50-32-8	Benzo(a)pyrene		0.0859	0.285	1.90	U
205-99-2	Benzo(b)fluoranthene		0.105	0.285	1.90	U
191-24-2	Benzo(g,h,i)perylene		0.379	0.949	1.90	U
207-08-9	Benzo(k)fluoranthene		0.236	0.474	1.90	U
65-85-0	Benzoic acid		3.53	9.49	28.5	U
100-51-6	Benzyl alcohol	0.133	0.113	0.285	0.949	JQ
111-91-1	Bis(2-chloroethoxy)methane		0.120	0.474	0.949	U
111-44-4	Bis(2-chloroethyl)ether		0.138	0.474	0.949	U
108-60-1	Bis(2-chloroisopropyl)ether		0.122	0.474	0.949	U
117-81-7	Bis(2-ethylhexyl)phthalate		4.18	9.49	19.0	U
85-68-7	Butyl benzyl phthalate		0.0885	0.285	0.949	U
86-74-8	Carbazole		0.0784	0.285	0.949	U
218-01-9	Chrysene		0.152	0.474	0.949	U
53-70-3	Dibenzo(a,h)anthracene		0.158	0.474	0.949	U
132-64-9	Dibenzofuran		0.168	0.474	0.949	U
84-66-2	Diethyl phthalate		0.140	0.474	0.949	U
131-11-3	Dimethyl phthalate		0.0728	0.285	0.949	U
84-74-2	Di-n-butyl phthalate		0.166	0.474	1.90	U
117-84-0	Di-n-octyl phthalate		2.89	9.49	28.5	U
206-44-0	Fluoranthene		0.123	0.474	0.949	U
86-73-7	Fluorene		0.131	0.474	0.949	U
118-74-1	Hexachlorobenzene		0.157	0.474	0.949	U
87-68-3	Hexachlorobutadiene		0.205	0.474	0.949	U
77-47-4	Hexachlorocyclopentadiene		2.07	4.74	14.2	U
67-72-1	Hexachloroethane		0.0739	0.285	0.949	U

*MW Hota*

# 1 - FORM I

## ANALYSIS DATA SHEET

18111409

Laboratory:	Environmental Monitoring and Tech.	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Water	Laboratory ID:	18L0491-01
		File ID:	S18L17013.D
Sampled:	12/11/18 00:00	Prepared:	12/17/18 10:06
		Analyzed:	12/17/18 20:24
Solids:		Preparation:	3510_B
		Dilution:	1
Initial/Final:	1054.1 ml / 1 ml		
Batch:	B8L0519	Sequence:	S8L0238
		Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/L)	MDL	LOD	RL	Q
193-39-5	Indeno(1,2,3-cd)pyrene		0.142	0.949	1.90	U
78-59-1	Isophorone		0.0730	0.285	0.949	U
91-20-3	Naphthalene		0.200	0.474	1.90	U
98-95-3	Nitrobenzene		0.144	0.474	0.949	U
62-75-9	N-Nitrosodimethylamine		0.517	1.90	4.74	U
621-64-7	N-Nitrosodi-n-propylamine		0.169	0.474	0.949	U
86-30-6	N-Nitrosodiphenylamine		0.0938	0.285	0.949	U
87-86-5	Pentachlorophenol		2.39	9.49	28.5	U
85-01-8	Phenanthrene		0.185	0.474	1.90	U
108-95-2	Phenol		0.119	0.285	0.949	U
129-00-0	Pyrene		0.0971	0.285	0.949	U

Italicized = secondary result

*mw 1/4/19*



# 1 - FORM I

## ANALYSIS DATA SHEET

18111410

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Water	Laboratory ID:	18L0491-02
Sampled:	12/11/18 00:00	Prepared:	12/17/18 10:06
Solids:		Preparation:	3510_B
Initial/Final:	993.8 ml / 1 ml	Analyzed:	12/17/18 20:58
Batch:	B8L0519	Dilution:	1
Sequence:	S8L0238	Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/L)	MDL	LOD	RL	Q
120-82-1	1,2,4-Trichlorobenzene		0.169	0.503	1.01	U
95-50-1	1,2-Dichlorobenzene		0.128	0.503	1.01	U
541-73-1	1,3-Dichlorobenzene		0.0929	0.302	1.01	U
106-46-7	1,4-Dichlorobenzene		0.146	0.503	1.01	U
95-95-4	2,4,5-Trichlorophenol		0.130	0.503	1.01	U
88-06-2	2,4,6-Trichlorophenol		0.112	0.302	1.01	U
120-83-2	2,4-Dichlorophenol		0.0793	0.302	1.01	U
105-67-9	2,4-Dimethylphenol		0.118	0.302	1.01	U
51-28-5	2,4-Dinitrophenol		3.33	10.1	30.2	U
121-14-2	2,4-Dinitrotoluene		2.99	10.1	30.2	U
606-20-2	2,6-Dinitrotoluene		0.0516	0.201	0.503	U
91-58-7	2-Chloronaphthalene		0.143	0.503	1.01	U
95-57-8	2-Chlorophenol		0.109	0.302	1.01	U
91-57-6	2-Methylnaphthalene		0.142	0.503	2.01	U
95-48-7	2-Methylphenol		0.122	0.302	1.01	U
88-74-4	2-Nitroaniline		2.58	10.1	30.2	U
88-75-5	2-Nitrophenol		0.0790	0.302	1.01	U
91-94-1	3,3'-Dichlorobenzidine		7.82	20.1	30.2	U
84989-04-8	3 & 4-Methylphenol		0.180	0.503	1.01	U
99-09-2	3-Nitroaniline		0.147	0.503	1.01	U
534-52-1	4,6-Dinitro-2-methylphenol		2.47	5.03	15.1	U
101-55-3	4-Bromophenyl-phenylether		0.161	0.503	1.01	U
59-50-7	4-Chloro-3-methylphenol		0.0717	0.201	0.503	U
106-47-8	4-Chloroaniline		0.188	0.503	1.01	U
7005-72-3	4-Chlorophenyl-phenylether		0.147	0.503	1.01	U
100-01-6	4-Nitroaniline		3.80	10.1	30.2	U
100-02-7	4-Nitrophenol		1.45	5.03	15.1	U
83-32-9	Acenaphthene		0.161	0.503	1.01	U
208-96-8	Acenaphthylene		0.0805	1.01	2.01	U

*MW H-19*

# 1 - FORM I

## ANALYSIS DATA SHEET

18111410

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Water	Laboratory ID:	18L0491-02
		File ID:	S18L17014.D
Sampled:	12/11/18 00:00	Prepared:	12/17/18 10:06
		Analyzed:	12/17/18 20:58
Solids:		Preparation:	3510_B
		Dilution:	1
Initial/Final:	993.8 ml / 1 ml		
Batch:	B8L0519	Sequence:	S8L0238
		Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/L)	MDL	LOD	RL	Q
120-12-7	Anthracene		0.0961	0.302	1.01	U
103-33-3	Azobenzene as 1,2-Diphenylhydrazine		0.0772	0.302	1.01	U
92-87-5	Benzidine		6.89	20.1	30.2	U
56-55-3	Benzo(a)anthracene		0.141	0.503	1.01	U
50-32-8	Benzo(a)pyrene		0.0911	0.302	2.01	U
205-99-2	Benzo(b)fluoranthene		0.111	0.302	2.01	U
191-24-2	Benzo(g,h,i)perylene		0.402	1.01	2.01	U
207-08-9	Benzo(k)fluoranthene		0.250	0.503	2.01	U
65-85-0	Benzoic acid		3.74	10.1	30.2	U
100-51-6	Benzyl alcohol		0.120	0.302	1.01	U
111-91-1	Bis(2-chloroethoxy)methane		0.127	0.503	1.01	U
111-44-4	Bis(2-chloroethyl)ether		0.146	0.503	1.01	U
108-60-1	Bis(2-chloroisopropyl)ether		0.129	0.503	1.01	U
117-81-7	Bis(2-ethylhexyl)phthalate		4.43	10.1	20.1	U
85-68-7	Butyl benzyl phthalate		0.0939	0.302	1.01	U
86-74-8	Carbazole		0.0831	0.302	1.01	U
218-01-9	Chrysene		0.162	0.503	1.01	U
53-70-3	Dibenzo(a,h)anthracene		0.167	0.503	1.01	U
132-64-9	Dibenzofuran		0.178	0.503	1.01	U
84-66-2	Diethyl phthalate		0.148	0.503	1.01	U
131-11-3	Dimethyl phthalate		0.0772	0.302	1.01	U
84-74-2	Di-n-butyl phthalate	0.402	0.176	0.503	2.01	J Q
117-84-0	Di-n-octyl phthalate		3.06	10.1	30.2	U
206-44-0	Fluoranthene		0.130	0.503	1.01	U
86-73-7	Fluorene		0.139	0.503	1.01	U
118-74-1	Hexachlorobenzene		0.166	0.503	1.01	U
87-68-3	Hexachlorobutadiene		0.217	0.503	1.01	U
77-47-4	Hexachlorocyclopentadiene		2.20	5.03	15.1	U
67-72-1	Hexachloroethane		0.0784	0.302	1.01	U

Jaw H019

# 1 - FORM I

## ANALYSIS DATA SHEET

18111410

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Water	Laboratory ID:	18L0491-02
		File ID:	S18L17014.D
Sampled:	12/11/18 00:00	Prepared:	12/17/18 10:06
		Analyzed:	12/17/18 20:58
Solids:		Preparation:	3510_B
		Dilution:	1
Initial/Final:	993.8 ml / 1 ml		
Batch:	B8L0519	Sequence:	S8L0238
		Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/L)	MDL	LOD	RL	Q
193-39-5	Indeno(1,2,3-cd)pyrene		0.151	1.01	2.01	U
78-59-1	Isophorone		0.0775	0.302	1.01	U
91-20-3	Naphthalene		0.213	0.503	2.01	U
98-95-3	Nitrobenzene		0.152	0.503	1.01	U
62-75-9	N-Nitrosodimethylamine		0.548	2.01	5.03	U
621-64-7	N-Nitrosodi-n-propylamine		0.180	0.503	1.01	U
86-30-6	N-Nitrosodiphenylamine		0.0995	0.302	1.01	U
87-86-5	Pentachlorophenol		2.54	10.1	30.2	U
85-01-8	Phenanthrene		0.196	0.503	2.01	U
108-95-2	Phenol		0.126	0.302	1.01	U
129-00-0	Pyrene		0.103	0.302	1.01	U

Italicized = secondary result

*MW H019*

# 1 - FORM I

## ANALYSIS DATA SHEET

18111411

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Water	Laboratory ID:	18L0495-02
Sampled:	12/11/18 00:00	Prepared:	12/17/18 10:06
Solids:		Preparation:	3510_B
Initial/Final:	1057 ml / 1 ml	Analyzed:	12/17/18 22:39
Batch:	B8L0519	Sequence:	S8L0238
		Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/L)	MDL	LOD	RL	Q
120-82-1	1,2,4-Trichlorobenzene		0.159	0.473	0.946	U
95-50-1	1,2-Dichlorobenzene		0.121	0.473	0.946	U
541-73-1	1,3-Dichlorobenzene		0.0873	0.284	0.946	U
106-46-7	1,4-Dichlorobenzene		0.137	0.473	0.946	U
95-95-4	2,4,5-Trichlorophenol		0.122	0.473	0.946	U
88-06-2	2,4,6-Trichlorophenol		0.105	0.284	0.946	U
120-83-2	2,4-Dichlorophenol		0.0746	0.284	0.946	U
105-67-9	2,4-Dimethylphenol		0.111	0.284	0.946	U
51-28-5	2,4-Dinitrophenol		3.13	9.46	28.4	U
121-14-2	2,4-Dinitrotoluene		2.81	9.46	28.4	U
606-20-2	2,6-Dinitrotoluene		0.0485	0.189	0.473	U
91-58-7	2-Chloronaphthalene		0.135	0.473	0.946	U
95-57-8	2-Chlorophenol		0.102	0.284	0.946	U
91-57-6	2-Methylnaphthalene		0.134	0.473	1.89	U
95-48-7	2-Methylphenol		0.114	0.284	0.946	U
88-74-4	2-Nitroaniline		2.42	9.46	28.4	U
88-75-5	2-Nitrophenol		0.0743	0.284	0.946	U
91-94-1	3,3'-Dichlorobenzidine		7.35	18.9	28.4	U
84989-04-8	3 & 4-Methylphenol		0.169	0.473	0.946	U
99-09-2	3-Nitroaniline		0.138	0.473	0.946	U
534-52-1	4,6-Dinitro-2-methylphenol		2.32	4.73	14.2	U
101-55-3	4-Bromophenyl-phenylether		0.151	0.473	0.946	U
59-50-7	4-Chloro-3-methylphenol		0.0675	0.189	0.473	U
106-47-8	4-Chloroaniline		0.177	0.473	0.946	U
7005-72-3	4-Chlorophenyl-phenylether		0.138	0.473	0.946	U
100-01-6	4-Nitroaniline		3.57	9.46	28.4	U
100-02-7	4-Nitrophenol		1.36	4.73	14.2	U
83-32-9	Acenaphthene		0.152	0.473	0.946	U
208-96-8	Acenaphthylene		0.0757	0.946	1.89	U

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# 1 - FORM I

## ANALYSIS DATA SHEET

18111411

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Water	Laboratory ID:	18L0495-02
		File ID:	S18L17017.D
Sampled:	12/11/18 00:00	Prepared:	12/17/18 10:06
		Analyzed:	12/17/18 22:39
Solids:		Preparation:	3510_B
		Dilution:	1
Initial/Final:	1057 ml / 1 ml		
Batch:	B8L0519	Sequence:	S8L0238
		Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/L)	MDL	LOD	RL	Q
120-12-7	Anthracene		0.0904	0.284	0.946	U
103-33-3	Azobenzene as 1,2-Diphenylhydrazine		0.0726	0.284	0.946	U
92-87-5	Benzidine		6.48	18.9	28.4	U
56-55-3	Benzo(a)anthracene		0.132	0.473	0.946	U
50-32-8	Benzo(a)pyrene		0.0856	0.284	1.89	U
205-99-2	Benzo(b)fluoranthene		0.104	0.284	1.89	U
191-24-2	Benzo(g,h,i)perylene		0.378	0.946	1.89	U
207-08-9	Benzo(k)fluoranthene		0.235	0.473	1.89	U
65-85-0	Benzoic acid		3.52	9.46	28.4	U
100-51-6	Benzyl alcohol		0.112	0.284	0.946	U
111-91-1	Bis(2-chloroethoxy)methane		0.119	0.473	0.946	U
111-44-4	Bis(2-chloroethyl)ether		0.137	0.473	0.946	U
108-60-1	Bis(2-chloroisopropyl)ether		0.121	0.473	0.946	U
117-81-7	Bis(2-ethylhexyl)phthalate		4.17	9.46	18.9	U
85-68-7	Butyl benzyl phthalate		0.0883	0.284	0.946	U
86-74-8	Carbazole		0.0781	0.284	0.946	U
218-01-9	Chrysene		0.152	0.473	0.946	U
53-70-3	Dibenzo(a,h)anthracene		0.157	0.473	0.946	U
132-64-9	Dibenzofuran		0.168	0.473	0.946	U
84-66-2	Diethyl phthalate		0.139	0.473	0.946	U
131-11-3	Dimethyl phthalate		0.0726	0.284	0.946	U
84-74-2	Di-n-butyl phthalate		0.165	0.473	1.89	U
117-84-0	Di-n-octyl phthalate		2.88	9.46	28.4	U
206-44-0	Fluoranthene		0.122	0.473	0.946	U
86-73-7	Fluorene		0.131	0.473	0.946	U
118-74-1	Hexachlorobenzene		0.156	0.473	0.946	U
87-68-3	Hexachlorobutadiene		0.204	0.473	0.946	U
77-47-4	Hexachlorocyclopentadiene		2.07	4.73	14.2	U
67-72-1	Hexachloroethane		0.0737	0.284	0.946	U

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# 1 - FORM I

## ANALYSIS DATA SHEET

18111411

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Water	Laboratory ID:	18L0495-02
		File ID:	S18L17017.D
Sampled:	12/11/18 00:00	Prepared:	12/17/18 10:06
		Analyzed:	12/17/18 22:39
Solids:		Preparation:	3510_B
		Dilution:	1
Initial/Final:	1057 ml / 1 ml		
Batch:	B8L0519	Sequence:	S8L0238
		Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/L)	MDL	LOD	RL	Q
193-39-5	Indeno(1,2,3-cd)pyrene		0.142	0.946	1.89	U
78-59-1	Isophorone		0.0728	0.284	0.946	U
91-20-3	Naphthalene		0.200	0.473	1.89	U
98-95-3	Nitrobenzene		0.143	0.473	0.946	U
62-75-9	N-Nitrosodimethylamine		0.516	1.89	4.73	U
621-64-7	N-Nitrosodi-n-propylamine		0.169	0.473	0.946	U
86-30-6	N-Nitrosodiphenylamine		0.0936	0.284	0.946	U
87-86-5	Pentachlorophenol		2.39	9.46	28.4	U
85-01-8	Phenanthrene		0.185	0.473	1.89	U
108-95-2	Phenol		0.118	0.284	0.946	U
129-00-0	Pyrene		0.0969	0.284	0.946	U

Italicized = secondary result

*MWHofa*

# 1 - FORM I

## ANALYSIS DATA SHEET

18111412

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Water	Laboratory ID:	18L0492-01
		File ID:	S18L17015.D
Sampled:	12/11/18 00:00	Prepared:	12/17/18 10:06
		Analyzed:	12/17/18 21:32
Solids:		Preparation:	3510_B
		Dilution:	1
Initial/Final:	881.5 ml / 1 ml		
Batch:	B8L0519	Sequence:	S8L0238
		Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/L)	MDL	LOD	RL	Q
120-82-1	1,2,4-Trichlorobenzene		0.191	0.567	1.13	U
95-50-1	1,2-Dichlorobenzene		0.145	0.567	1.13	U
541-73-1	1,3-Dichlorobenzene		0.105	0.340	1.13	U
106-46-7	1,4-Dichlorobenzene		0.165	0.567	1.13	U
95-95-4	2,4,5-Trichlorophenol		0.147	0.567	1.13	U
88-06-2	2,4,6-Trichlorophenol		0.126	0.340	1.13	U
120-83-2	2,4-Dichlorophenol		0.0894	0.340	1.13	U
105-67-9	2,4-Dimethylphenol		0.133	0.340	1.13	U
51-28-5	2,4-Dinitrophenol		3.75	11.3	34.0	U
121-14-2	2,4-Dinitrotoluene		3.37	11.3	34.0	U
606-20-2	2,6-Dinitrotoluene		0.0582	0.227	0.567	U
91-58-7	2-Chloronaphthalene		0.161	0.567	1.13	U
95-57-8	2-Chlorophenol		0.123	0.340	1.13	U
91-57-6	2-Methylnaphthalene		0.160	0.567	2.27	U
95-48-7	2-Methylphenol		0.137	0.340	1.13	U
88-74-4	2-Nitroaniline		2.91	11.3	34.0	U
88-75-5	2-Nitrophenol		0.0891	0.340	1.13	U
91-94-1	3,3'-Dichlorobenzidine		8.82	22.7	34.0	U
84989-04-8	3 & 4-Methylphenol		0.203	0.567	1.13	U
99-09-2	3-Nitroaniline		0.166	0.567	1.13	U
534-52-1	4,6-Dinitro-2-methylphenol		2.78	5.67	17.0	U
101-55-3	4-Bromophenyl-phenylether		0.182	0.567	1.13	U
59-50-7	4-Chloro-3-methylphenol		0.0809	0.227	0.567	U
106-47-8	4-Chloroaniline		0.212	0.567	1.13	U
7005-72-3	4-Chlorophenyl-phenylether		0.165	0.567	1.13	U
100-01-6	4-Nitroaniline		4.28	11.3	34.0	U
100-02-7	4-Nitrophenol		1.63	5.67	17.0	U
83-32-9	Acenaphthene		0.182	0.567	1.13	U
208-96-8	Acenaphthylene		0.0908	1.13	2.27	U

*MW H019*

# 1 - FORM I

## ANALYSIS DATA SHEET

18111412

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Water	Laboratory ID:	18L0492-01
Sampled:	12/11/18 00:00	Prepared:	12/17/18 10:06
Solids:		Preparation:	3510_B
Initial/Final:	881.5 ml / 1 ml	Analyzed:	12/17/18 21:32
Batch:	B8L0519	Dilution:	1
Sequence:	S8L0238	Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/L)	MDL	LOD	RL	Q
120-12-7	Anthracene		0.108	0.340	1.13	U
103-33-3	Azobenzene as 1,2-Diphenylhydrazine		0.0870	0.340	1.13	U
92-87-5	Benzidine		7.76	22.7	34.0	U
56-55-3	Benzo(a)anthracene		0.159	0.567	1.13	U
50-32-8	Benzo(a)pyrene		0.103	0.340	2.27	U
205-99-2	Benzo(b)fluoranthene		0.125	0.340	2.27	U
191-24-2	Benzo(g,h,i)perylene		0.453	1.13	2.27	U
207-08-9	Benzo(k)fluoranthene		0.282	0.567	2.27	U
65-85-0	Benzoic acid		4.22	11.3	34.0	U
100-51-6	Benzyl alcohol		0.135	0.340	1.13	U
111-91-1	Bis(2-chloroethoxy)methane		0.143	0.567	1.13	U
111-44-4	Bis(2-chloroethyl)ether		0.164	0.567	1.13	U
108-60-1	Bis(2-chloroisopropyl)ether		0.146	0.567	1.13	U
117-81-7	Bis(2-ethylhexyl)phthalate		5.00	11.3	22.7	U
85-68-7	Butyl benzyl phthalate		0.106	0.340	1.13	U
86-74-8	Carbazole		0.0937	0.340	1.13	U
218-01-9	Chrysene		0.182	0.567	1.13	U
53-70-3	Dibenzo(a,h)anthracene		0.189	0.567	1.13	U
132-64-9	Dibenzofuran		0.201	0.567	1.13	U
84-66-2	Diethyl phthalate		0.167	0.567	1.13	U
131-11-3	Dimethyl phthalate		0.0870	0.340	1.13	U
84-74-2	Di-n-butyl phthalate	0.510	0.198	0.567	2.27	J Q
117-84-0	Di-n-octyl phthalate		3.45	11.3	34.0	U
206-44-0	Fluoranthene	0.340	0.147	0.567	1.13	J Q
86-73-7	Fluorene		0.157	0.567	1.13	U
118-74-1	Hexachlorobenzene		0.187	0.567	1.13	U
87-68-3	Hexachlorobutadiene		0.245	0.567	1.13	U
77-47-4	Hexachlorocyclopentadiene		2.48	5.67	17.0	U
67-72-1	Hexachloroethane		0.0884	0.340	1.13	U

*Mw Hota*



# 1 - FORM I

## ANALYSIS DATA SHEET

18111412

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Water	Laboratory ID:	18L0492-01
		File ID:	S18L17015.D
Sampled:	12/11/18 00:00	Prepared:	12/17/18 10:06
		Analyzed:	12/17/18 21:32
Solids:		Preparation:	3510_B
		Dilution:	1
Initial/Final:	881.5 ml / 1 ml		
Batch:	B8L0519	Sequence:	S8L0238
		Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/L)	MDL	LOD	RL	Q
193-39-5	Indeno(1,2,3-cd)pyrene		0.170	1.13	2.27	U
78-59-1	Isophorone		0.0874	0.340	1.13	U
91-20-3	Naphthalene		0.240	0.567	2.27	U
98-95-3	Nitrobenzene		0.172	0.567	1.13	U
62-75-9	N-Nitrosodimethylamine		0.618	2.27	5.67	U
621-64-7	N-Nitrosodi-n-propylamine		0.202	0.567	1.13	U
86-30-6	N-Nitrosodiphenylamine		0.112	0.340	1.13	U
87-86-5	Pentachlorophenol		2.86	11.3	34.0	U
85-01-8	Phenanthrene		0.221	0.567	2.27	U
108-95-2	Phenol		0.142	0.340	1.13	U
129-00-0	Pyrene	0.465	0.116	0.340	1.13	JQ

Italicized = secondary result

*MW Hote*

# 1 - FORM I

## ANALYSIS DATA SHEET

18111413

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Water	Laboratory ID:	18L0492-02
		File ID:	S18L17016.D
Sampled:	12/11/18 00:00	Prepared:	12/17/18 10:06
		Analyzed:	12/17/18 22:06
Solids:		Preparation:	3510_B
		Dilution:	1
Initial/Final:	1012.8 ml / 1 ml		
Batch:	B8L0519	Sequence:	S8L0238
		Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/L)	MDL	LOD	RL	Q
120-82-1	1,2,4-Trichlorobenzene		0.166	0.494	0.987	U
95-50-1	1,2-Dichlorobenzene		0.126	0.494	0.987	U
541-73-1	1,3-Dichlorobenzene		0.0911	0.296	0.987	U
106-46-7	1,4-Dichlorobenzene		0.143	0.494	0.987	U
95-95-4	2,4,5-Trichlorophenol		0.128	0.494	0.987	U
88-06-2	2,4,6-Trichlorophenol		0.110	0.296	0.987	U
120-83-2	2,4-Dichlorophenol		0.0778	0.296	0.987	U
105-67-9	2,4-Dimethylphenol		0.116	0.296	0.987	U
51-28-5	2,4-Dinitrophenol		3.27	9.87	29.6	U
121-14-2	2,4-Dinitrotoluene		2.93	9.87	29.6	U
606-20-2	2,6-Dinitrotoluene		0.0507	0.197	0.494	U
91-58-7	2-Chloronaphthalene		0.140	0.494	0.987	U
95-57-8	2-Chlorophenol		0.107	0.296	0.987	U
91-57-6	2-Methylnaphthalene		0.140	0.494	1.97	U
95-48-7	2-Methylphenol		0.119	0.296	0.987	U
88-74-4	2-Nitroaniline		2.53	9.87	29.6	U
88-75-5	2-Nitrophenol		0.0775	0.296	0.987	U
91-94-1	3,3'-Dichlorobenzidine		7.67	19.7	29.6	U
84989-04-8	3 & 4-Methylphenol		0.177	0.494	0.987	U
99-09-2	3-Nitroaniline		0.144	0.494	0.987	U
534-52-1	4,6-Dinitro-2-methylphenol		2.42	4.94	14.8	U
101-55-3	4-Bromophenyl-phenylether		0.158	0.494	0.987	U
59-50-7	4-Chloro-3-methylphenol		0.0704	0.197	0.494	U
106-47-8	4-Chloroaniline		0.185	0.494	0.987	U
7005-72-3	4-Chlorophenyl-phenylether		0.144	0.494	0.987	U
100-01-6	4-Nitroaniline		3.73	9.87	29.6	U
100-02-7	4-Nitrophenol		1.42	4.94	14.8	U
83-32-9	Acenaphthene		0.158	0.494	0.987	U
208-96-8	Acenaphthylene		0.0790	0.987	1.97	U

*Mu Ho-ja*

# 1 - FORM I

## ANALYSIS DATA SHEET

18111413

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Water	Laboratory ID:	18L0492-02
		File ID:	S18L17016.D
Sampled:	12/11/18 00:00	Prepared:	12/17/18 10:06
		Analyzed:	12/17/18 22:06
Solids:		Preparation:	3510_B
		Dilution:	1
Initial/Final:	1012.8 ml / 1 ml		
Batch:	B8L0519	Sequence:	S8L0238
		Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/L)	MDL	LOD	RL	Q
120-12-7	Anthracene		0.0943	0.296	0.987	U
103-33-3	Azobenzene as 1,2-Diphenylhydrazine		0.0757	0.296	0.987	U
92-87-5	Benzidine		6.76	19.7	29.6	U
56-55-3	Benzo(a)anthracene		0.138	0.494	0.987	U
50-32-8	Benzo(a)pyrene		0.0894	0.296	1.97	U
205-99-2	Benzo(b)fluoranthene		0.109	0.296	1.97	U
191-24-2	Benzo(g,h,i)perylene		0.394	0.987	1.97	U
207-08-9	Benzo(k)fluoranthene		0.246	0.494	1.97	U
65-85-0	Benzoic acid		3.67	9.87	29.6	U
100-51-6	Benzyl alcohol		0.117	0.296	0.987	U
111-91-1	Bis(2-chloroethoxy)methane		0.125	0.494	0.987	U
111-44-4	Bis(2-chloroethyl)ether		0.143	0.494	0.987	U
108-60-1	Bis(2-chloroisopropyl)ether		0.127	0.494	0.987	U
117-81-7	Bis(2-ethylhexyl)phthalate		4.35	9.87	19.7	U
85-68-7	Butyl benzyl phthalate		0.0921	0.296	0.987	U
86-74-8	Carbazole		0.0816	0.296	0.987	U
218-01-9	Chrysene		0.159	0.494	0.987	U
53-70-3	Dibenzo(a,h)anthracene		0.164	0.494	0.987	U
132-64-9	Dibenzofuran		0.175	0.494	0.987	U
84-66-2	Diethyl phthalate		0.145	0.494	0.987	U
131-11-3	Dimethyl phthalate		0.0757	0.296	0.987	U
84-74-2	Di-n-butyl phthalate		0.172	0.494	1.97	U
117-84-0	Di-n-octyl phthalate		3.01	9.87	29.6	U
206-44-0	Fluoranthene		0.128	0.494	0.987	U
86-73-7	Fluorene		0.136	0.494	0.987	U
118-74-1	Hexachlorobenzene		0.163	0.494	0.987	U
87-68-3	Hexachlorobutadiene		0.213	0.494	0.987	U
77-47-4	Hexachlorocyclopentadiene		2.16	4.94	14.8	U
67-72-1	Hexachloroethane		0.0769	0.296	0.987	U

MN 14019

# 1 - FORM I

## ANALYSIS DATA SHEET

18111413

Laboratory:	Environmental Monitoring and Tech	SDG:	10RB-2nd Set
Client:	Ecology and Environment, Inc.	Project:	1004530.0470.001.01
Matrix:	Water	Laboratory ID:	18L0492-02
		File ID:	S18L17016.D
Sampled:	12/11/18 00:00	Prepared:	12/17/18 10:06
		Analyzed:	12/17/18 22:06
Solids:		Preparation:	3510_B
		Dilution:	1
Initial/Final:	1012.8 ml / 1 ml		
Batch:	B8L0519	Sequence:	S8L0238
		Calibration:	EL80019
		Instrument:	S

CAS NO.	COMPOUND	CONC. (ug/L)	MDL	LOD	RL	Q
193-39-5	Indeno(1,2,3-cd)pyrene		0.148	0.987	1.97	U
78-59-1	Isophorone		0.0760	0.296	0.987	U
91-20-3	Naphthalene		0.209	0.494	1.97	U
98-95-3	Nitrobenzene		0.150	0.494	0.987	U
62-75-9	N-Nitrosodimethylamine		0.538	1.97	4.94	U
621-64-7	N-Nitrosodi-n-propylamine		0.176	0.494	0.987	U
86-30-6	N-Nitrosodiphenylamine		0.0977	0.296	0.987	U
87-86-5	Pentachlorophenol		2.49	9.87	29.6	U
85-01-8	Phenanthrene		0.193	0.494	1.97	U
108-95-2	Phenol		0.123	0.296	0.987	U
129-00-0	Pyrene		0.101	0.296	0.987	U

Italicized = secondary result

*MW/Hol*



## ecology and environment, inc.

Global Environmental Specialists

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Seattle, Washington 98104

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### MEMORANDUM

DATE: August 4, 2019

TO: Seth Wing, START-IV Project Manager, E & E, Seattle, WA

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington *MW*

SUBJ: **Organic Data Quality Assurance Review, May Creek Removal Action Site, Renton, Washington**

REF: TO: TO-68HE0718F0470 PAN: 1004530.0470.001.01

The data quality assurance review of nine soil samples collected from the May Creek Removal Action site located in Renton, Washington, has been completed. Analysis for Extended Diesel Range Total Petroleum Hydrocarbons (Ecology Method NWTPH-Dx) was performed by Test America, Inc., Tacoma, Washington. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Manual Process (S2B/4VM).

The samples were numbered:

19070102	19070103	19070104	19070105	19070106
19070107	19070108	19070109	19070110	

#### Data Qualifications:

##### 1. Sample Holding Times: Acceptable.

The samples were maintained at  $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ . The samples were collected on July 10, 2019, extracted on July 12, 2019, and analyzed by July 14, 2019, therefore meeting QC criteria of less than 14 days between collection and extraction for soil samples and less than 40 days between extraction and analysis.

##### 2. Initial Calibration: Acceptable.

Calculations were verified as correct. All relative percent differences (RPDs) were within the laboratory control limits.

##### 3. Continuing Calibration: Satisfactory.

Calculations were verified as correct. All percent differences (%Ds) were within the laboratory control limits except some low recoveries for the surrogate o-Terphenyl. No actions were taken as the associated sample surrogate results were within QC limits except when interfered with due to the sample matrix and diluted.

**4. Blanks: Acceptable.**

A method blank was analyzed for each extraction batch for each matrix and analysis system. Diesel- and motor oil-range TPHs were not detected in the method blank.

**5. System Monitoring Compounds (SMC): Satisfactory.**

All recoveries of the SMCs were greater than 10% and within QC limits except for the following samples: 19070103, 19070105, 19070107, 19070108, and 19070109. Evidence of matrix interference was present, and the samples were diluted; therefore, no qualifications were applied.

**6. Blank Spike (BS) and BS Duplicate (BSD): Acceptable.**

BS and BSD recoveries were within QC limits.

**7. Duplicates: Acceptable.**

All duplicate and spike duplicate results were within QC limits.

**8. Quantitation and Quantitation Limits: Acceptable.**

Sample concentrations were correctly calculated.

**9. Laboratory Contact: Not Required.**

No laboratory contact was required.

**11. Overall Assessment of Data for Use**

From the laboratory case narrative:

- The following samples contained a hydrocarbon pattern in the diesel range; however, the elution pattern was later than the typical diesel fuel pattern used by the laboratory for quantitative purposes: 19070102, 19070103, 19070104, 19070105, 19070107, 19070108, 19070109, and 19070110. Associated positive sample results were qualified as estimated quantities with an unknown bias (JK).
- The Diesel Range Organics (DRO) concentration reported for the following sample is due to the presence of discrete peaks: 19070106. The associated sample result was qualified as an estimated quantity with a high bias (JH).
- The C40 retention time marker in RTC 580-305592/2 is suppressed. The motor oil range is defined as C24-C36, for which the RTC markers are adequate; therefore, motor oil data is reported. No actions were taken based on this.

A total of 18 results were validated in this data memorandum. No sample results were qualified as estimated quantities (J) based on duplicate precision outliers, spike accuracy outliers, holding time outliers, incorrect sample containers, or sample temperature outliers. No sample results were rejected (R).

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the analytical method(s), the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, and/or the Office of Emergency and Remedial Response Publication "National Functional Guidelines for Superfund Organic Methods Data Review, January 2017". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

#### Data Qualifiers and Definitions

- H - The sample result is biased high.
- J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
- K - The bias of the sample is not known.
- L - The sample result is biased low.
- Q - Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.
- R - The data is rejected and unusable. The analyte may or may not be present in the sample.
- U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.

FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87582-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070102 Lab Sample ID: 580-87582-1  
 Matrix: Solid Lab File ID: 071419A\_007.D  
 Analysis Method: NWTPH-Dx Date Collected: 07/10/2019 15:02  
 Extraction Method: 3546 Date Extracted: 07/12/2019 12:40  
 Sample wt/vol: 10.916(g) Date Analyzed: 07/14/2019 15:47  
 Con. Extract Vol.: 10 (mL) Dilution Factor: 1  
 Injection Volume: 1 (uL) GC Column: ZB-1HT ID: 0.25 (mm)  
 % Moisture: 9.3 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 305592 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00163	#2 Diesel (C10-C24)	27	JQ	51	12
STL00299	Motor Oil (>C24-C36)	290		51	18

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	68		50-150

*MW B44*



FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87582-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070103 Lab Sample ID: 580-87582-2  
 Matrix: Solid Lab File ID: 071419A\_008.D  
 Analysis Method: NWTPH-Dx Date Collected: 07/10/2019 15:04  
 Extraction Method: 3546 Date Extracted: 07/12/2019 12:40  
 Sample wt/vol: 10.014(g) Date Analyzed: 07/14/2019 16:07  
 Con. Extract Vol.: 10(mL) Dilution Factor: 10  
 Injection Volume: 1(uL) GC Column: ZB-1HT ID: 0.25(mm)  
 % Moisture: 11.3 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 305592 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00163	#2 Diesel (C10-C24)	<del>ND</del>		560	140
STL00299	Motor Oil (>C24-C36)	750		560	200

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	24	<del>X</del> <u>NY</u>	50-150

FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87582-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070104

Lab Sample ID: 580-87582-3

Matrix: Solid

Lab File ID: 071419A\_009.D

Analysis Method: NWTPH-Dx

Date Collected: 07/10/2019 15:10

Extraction Method: 3546

Date Extracted: 07/12/2019 12:40

Sample wt/vol: 10.479(g)

Date Analyzed: 07/14/2019 16:27

Con. Extract Vol.: 10(mL)

Dilution Factor: 2.5

Injection Volume: 1(uL)

GC Column: ZB-1HT ID: 0.25(mm)

% Moisture: 10.3

GPC Cleanup: (Y/N) N

Analysis Batch No.: 305592

Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00163	#2 Diesel (C10-C24)	NDL		130	33
STL00299	Motor Oil (>C24-C36)	440		130	47

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	67		50-150

FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87582-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070105 Lab Sample ID: 580-87582-4  
 Matrix: Solid Lab File ID: 071419A\_010.D  
 Analysis Method: NWTPH-Dx Date Collected: 07/10/2019 15:15  
 Extraction Method: 3546 Date Extracted: 07/12/2019 12:40  
 Sample wt/vol: 10.563(g) Date Analyzed: 07/14/2019 16:48  
 Con. Extract Vol.: 10(mL) Dilution Factor: 10  
 Injection Volume: 1(uL) GC Column: ZB-1HT ID: 0.25(mm)  
 % Moisture: 10.4 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 305592 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00163	#2 Diesel (C10-C24)	<del>ND</del>		530	130
STL00299	Motor Oil (>C24-C36)	710		530	180

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	40	<del>X</del>	50-150

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FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87582-1  
SDG No.: \_\_\_\_\_  
Client Sample ID: 19070106 Lab Sample ID: 580-87582-5  
Matrix: Solid Lab File ID: 071419A\_011.D  
Analysis Method: NWTPH-Dx Date Collected: 07/10/2019 15:25  
Extraction Method: 3546 Date Extracted: 07/12/2019 12:40  
Sample wt/vol: 11.344(g) Date Analyzed: 07/14/2019 17:08  
Con. Extract Vol.: 10(mL) Dilution Factor: 2.5  
Injection Volume: 1(uL) GC Column: ZB-1HT ID: 0.25 (mm)  
% Moisture: 13.5 GPC Cleanup: (Y/N) N  
Analysis Batch No.: 305592 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00163	#2 Diesel (C10-C24)	6600	57	130	31
STL00299	Motor Oil (>C24-C36)	790		130	45

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	80		50-150

MW 8-4-19

FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87582-1  
SDG No.: \_\_\_\_\_  
Client Sample ID: 19070107 Lab Sample ID: 580-87582-6  
Matrix: Solid Lab File ID: 071419A\_012.D  
Analysis Method: NWTPH-Dx Date Collected: 07/10/2019 16:29  
Extraction Method: 3546 Date Extracted: 07/12/2019 12:40  
Sample wt/vol: 10.281(g) Date Analyzed: 07/14/2019 17:28  
Con. Extract Vol.: 10(mL) Dilution Factor: 20  
Injection Volume: 1(uL) GC Column: ZB-1HT ID: 0.25(mm)  
% Moisture: 8.6 GPC Cleanup: (Y/N) N  
Analysis Batch No.: 305592 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00163	#2 Diesel (C10-C24)	280	JQ	1100	260
STL00299	Motor Oil (>C24-C36)	3300		1100	370

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	47	X <i>mw</i>	50-150

*mw 84-19*

FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87582-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070108 Lab Sample ID: 580-87582-7  
 Matrix: Solid Lab File ID: 071419A\_013.D  
 Analysis Method: NWTPH-Dx Date Collected: 07/10/2019 16:35  
 Extraction Method: 3546 Date Extracted: 07/12/2019 12:40  
 Sample wt/vol: 10.274(g) Date Analyzed: 07/14/2019 17:48  
 Con. Extract Vol.: 10(mL) Dilution Factor: 20  
 Injection Volume: 1(uL) GC Column: ZB-1HT ID: 0.25(mm)  
 % Moisture: 43.0 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 305592 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00163	#2 Diesel (C10-C24)	ND <i>mw</i>		1700 <i>U</i>	420
STL00299	Motor Oil (>C24-C36)	2400		1700	600

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	29	<i>mw</i>	50-150

FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87582-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070109 Lab Sample ID: 580-87582-8  
 Matrix: Solid Lab File ID: 071419A\_015.D  
 Analysis Method: NWTPH-Dx Date Collected: 07/10/2019 16:43  
 Extraction Method: 3546 Date Extracted: 07/12/2019 12:40  
 Sample wt/vol: 11.375(g) Date Analyzed: 07/14/2019 18:28  
 Con. Extract Vol.: 10 (mL) Dilution Factor: 20  
 Injection Volume: 1 (uL) GC Column: ZB-1HT ID: 0.25 (mm)  
 % Moisture: 37.9 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 305592 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00163	#2 Diesel (C10-C24)	<del>ND</del> <i>mw</i>		1400 <i>U</i>	350
STL00299	Motor Oil (>C24-C36)	2500		1400	500

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	17	<i>X mw</i>	50-150

*mw 8-4-19*

FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87582-1  
SDG No.: \_\_\_\_\_  
Client Sample ID: 19070110 Lab Sample ID: 580-87582-9  
Matrix: Solid Lab File ID: 071419A\_016.D  
Analysis Method: NWTPH-Dx Date Collected: 07/10/2019 16:54  
Extraction Method: 3546 Date Extracted: 07/12/2019 12:40  
Sample wt/vol: 10.887(g) Date Analyzed: 07/14/2019 18:48  
Con. Extract Vol.: 10(mL) Dilution Factor: 10  
Injection Volume: 1(uL) GC Column: ZB-1HT ID: 0.25(mm)  
% Moisture: 21.3 GPC Cleanup: (Y/N) N  
Analysis Batch No.: 305592 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00163	#2 Diesel (C10-C24)	910	JK	580	140
STL00299	Motor Oil (>C24-C36)	2000		580	200

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	61		50-150

*Ma JKH*





**MEMORANDUM**

DATE: January 8, 2020

TO: Seth Wing, START-IV Project Manager, E & E, Seattle, WA

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington *MW*

SUBJ: **Inorganic Data Quality Assurance Review, May Creek Removal Action Site, Renton, Washington**

REF: TO: TO-68HE0718F0470 PAN: 1004530.0470.001.01

The data quality assurance review of two soil samples collected from the May Creek Removal Action site in Renton, Washington, has been completed. Target Analyte List (TAL) metals analyses (EPA Methods 6010 and 7471) were performed by Test America, Inc., Tacoma, Washington. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Manual Process (S2B/4VM).

The samples were numbered: 19070203 19070204

**Data Qualifications:**

**1. Sample Holding Times: Acceptable.**

The samples were maintained and received within the QC limits of  $< 6^{\circ}\text{C}$  (only applies to mercury). The samples were collected on July 10, 2019, and were analyzed by July 18, 2019, therefore meeting QC criteria of less than 6 months between collection, extraction, and analysis (28 days for mercury).

**2. Initial and Continuing Calibration: Acceptable.**

A minimum of one calibration standard and a blank were analyzed at the beginning of the ICP analysis sequence and after every 10 samples. No results were greater than 110% of the highest calibration standard. All ICP recoveries were within the QC limits. All AA recoveries were within QC limits and the initial calibration correlation coefficient was  $> 0.995$ .

**3. Blanks: Satisfactory.**

A preparation blank was analyzed for each 20 samples or per matrix per concentration level. Blanks were analyzed after each Initial or Continuing Calibration Verification. There were no detections in any blanks that potentially affected sample results except cadmium; associated positive sample results less than the reporting limit were qualified as not detected (U) at the reporting limit.

**4. ICP Interference Check Sample: Acceptable.**

An Interference Check Sample (ICS) was analyzed at the beginning of each sequence. All applicable ICS (solution AB) results were within QC limits of 80% - 120% recovery.

**5. Duplicate Analysis: Acceptable.**

A laboratory spike duplicate analysis was performed per SDG or per matrix per concentration level, whichever was more frequent. All spike duplicate results were within QC limits.

**6. Laboratory Control Sample Analysis: Acceptable.**

A Laboratory Control Sample (LCS) and LCS duplicate were analyzed per SDG per matrix. All LCS results were within the established control limits.

**7. Overall Assessment of Data for Use**

This memo was updated in January 2020 to include silver results which were inadvertently omitted.

A total of 46 results were validated in this data memorandum. No sample results were qualified as estimated quantities (J) based on duplicate precision outliers, spike accuracy outliers, holding time outliers, incorrect sample containers, sample temperature outliers, or serial dilution outliers. No sample results were rejected (R).

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the analytical method(s), the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, and/or the Office of Emergency and Remedial Response Publication "National Functional Guidelines for Superfund Inorganic Methods Data Review, January 2017". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

H - The sample result is biased high.

J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

K - The bias of the sample is not known.

L - The sample result is biased low.

Q - Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.

R - The data is rejected and unusable. The analyte may or may not be present in the sample.

U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.

UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.

1A-IN  
INORGANIC ANALYSIS DATA SHEET  
METALS

Client Sample ID: 19070203

Lab Sample ID: 580-87597-1

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87597-1

SDG ID.:

Matrix: Solid

Date Sampled: 07/10/2019 09:15

Reporting Basis: DRY

Date Received: 07/11/2019 16:00

% Solids: 41.9

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7429-90-5	Aluminum	30000	110	14	mg/Kg			1	6010D
7440-36-0	Antimony	0.59	4.3	0.37	mg/Kg	JQ		1	6010D
7440-38-2	Arsenic	8.0	4.3	0.35	mg/Kg			1	6010D
7440-39-3	Barium	200	0.71	0.11	mg/Kg		FW	1	6010D
7440-41-7	Beryllium	0.51	1.4	0.021	mg/Kg	JQ		1	6010D
7440-43-9	Cadmium	<del>0.33</del> 0.33	1.4	0.070	mg/Kg	JQ		1	6010D
7440-70-2	Calcium	4500	78	14	mg/Kg			1	6010D
7440-47-3	Chromium	48	1.8	0.31	mg/Kg			1	6010D
7440-48-4	Cobalt	13	1.4	0.035	mg/Kg			1	6010D
7440-50-8	Copper	20	3.5	0.57	mg/Kg			1	6010D
7439-89-6	Iron	28000	92	22	mg/Kg			1	6010D
7439-92-1	Lead	12	2.1	0.32	mg/Kg			1	6010D
7439-95-4	Magnesium	6700	78	11	mg/Kg			1	6010D
7439-96-5	Manganese	630	2.8	0.54	mg/Kg			1	6010D
7440-02-0	Nickel	34	1.4	0.15	mg/Kg			1	6010D
7440-09-7	Potassium	610	230	9.7	mg/Kg		FW	1	6010D
7782-49-2	Selenium	ND	7.1	0.56	mg/Kg			1	6010D
7440-22-4	Silver	ND	3.5	0.79	mg/Kg			1	6010D
7440-23-5	Sodium	200	140	27	mg/Kg			1	6010D
7440-28-0	Thallium	ND	7.1	0.60	mg/Kg			1	6010D
7440-62-2	Vanadium	79	2.8	0.37	mg/Kg			1	6010D
7440-66-6	Zinc	58	5.7	1.4	mg/Kg			1	6010D
7439-97-6	Mercury	0.11	0.053	0.016	mg/Kg			1	7471A

new 1-820

1A-IN  
INORGANIC ANALYSIS DATA SHEET  
METALS

Client Sample ID: 19070204

Lab Sample ID: 580-87597-2

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87597-1

SDG ID.:

Matrix: Solid

Date Sampled: 07/10/2019 09:28

Reporting Basis: DRY

Date Received: 07/11/2019 16:00

% Solids: 91.3

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7429-90-5	Aluminum	11000	54	7.1	mg/Kg			1	6010D
7440-36-0	Antimony	0.82	2.2	0.19	mg/Kg	J Q		1	6010D
7440-38-2	Arsenic	4.6	2.2	0.18	mg/Kg			1	6010D
7440-39-3	Barium	55	0.36	0.057	mg/Kg		Am	1	6010D
7440-41-7	Beryllium	0.18	0.72	0.011	mg/Kg	J Q		1	6010D
7440-43-9	Cadmium	0.24	0.72	0.035	mg/Kg	J Q		1	6010D
7440-70-2	Calcium	5700	39	7.2	mg/Kg			1	6010D
7440-47-3	Chromium	22	0.93	0.15	mg/Kg			1	6010D
7440-48-4	Cobalt	7.3	0.72	0.018	mg/Kg			1	6010D
7440-50-8	Copper	24	1.8	0.29	mg/Kg			1	6010D
7439-89-6	Iron	16000	47	11	mg/Kg			1	6010D
7439-92-1	Lead	22	1.1	0.16	mg/Kg			1	6010D
7439-95-4	Magnesium	4900	39	5.7	mg/Kg			1	6010D
7439-96-5	Manganese	250	1.4	0.27	mg/Kg			1	6010D
7440-02-0	Nickel	23	0.72	0.074	mg/Kg			1	6010D
7440-09-7	Potassium	830	120	4.9	mg/Kg		Am	1	6010D
7782-49-2	Selenium	ND	3.6	0.28	mg/Kg			1	6010D
7440-22-4	Silver	ND	1.8	0.40	mg/Kg			1	6010D
7440-23-5	Sodium	260	72	13	mg/Kg			1	6010D
7440-28-0	Thallium	ND	3.6	0.30	mg/Kg			1	6010D
7440-62-2	Vanadium	42	1.4	0.19	mg/Kg			1	6010D
7440-66-6	Zinc	69	2.9	0.68	mg/Kg			1	6010D
7439-97-6	Mercury	0.13	0.024	0.0073	mg/Kg			1	7471A

mw H870



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### MEMORANDUM

DATE: August 20, 2019

TO: Seth Wing, START-IV Project Manager, E & E, Seattle, WA

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington MW

SUBJ: Organic Data Quality Assurance Review, May Creek Removal Action Site, Renton, Washington

REF: TO: TO-68HE0718F0470      PAN: 1004530.0470.001.01

The data quality assurance review of 3 soil samples, including one field blank, collected from the May Creek Removal Action site in Renton, Washington, has been completed. Volatile Organic Compound (VOC) analysis (EPA Method 8260) was performed by Test America, Inc., Tacoma, Washington. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Manual Process (S2B/4VM).

The samples were numbered: 19070203      19070204      19070602

#### Data Qualifications:

##### 1. Sample Holding Times: Satisfactory.

The samples were maintained and received within the QC limits of  $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ . The samples were collected on July 10, 2019, were received on July 11, 2019, and were analyzed by July 24, 2019, therefore meeting QC criteria of less than 14 days between collection and analysis for soil samples. The samples were not placed in the freezer within 48 hours; therefore, all sample results were qualified as estimated quantities with a low bias (JL or UJL).

##### 2. Tuning: Acceptable.

Tuning was performed at the beginning of each 12-hour analysis sequence. All results were within QC limits.

##### 3. Initial Calibration: Acceptable.

All average Relative Response Factors (RRFs) were within the QC limits. All Relative Standard Deviations (RSDs) and/or correlation coefficients were within the QC limits.

##### 4. Continuing Calibration: Satisfactory.

All RRFs were within the QC limits. Applicable percent differences were within QC limits except a high result for t-butylbenzene; no actions were taken based on this outlier as t-butylbenzene was not detected in any samples.

##### 5. Blanks: Acceptable.

A method blank was analyzed for each 20 sample batch per matrix. There were no detections in any method blank. There were no detections in the trip blank.

**6. System Monitoring Compounds (SMCs): Acceptable.**

All SMC recoveries were within QC limits.

**7. Blank Spike (BS)/BS Duplicate (BSD) Analysis: Acceptable.**

BS and BSD analyses were performed per SDG or per matrix per concentration level, whichever was more frequent. All recoveries were within QC limits except some analytes failed the recovery criteria high for the BS and/or BSD. These analytes were not detected in the associated samples; therefore, no qualifications were required.

**8. Spike Duplicate Analysis: Acceptable.**

Spike duplicate analyses were performed per SDG or per matrix per concentration level, whichever was more frequent. All spike duplicate results were within QC limits.

**9. Internal Standards: Acceptable.**

All internal standards were within  $\pm 30$  seconds of the continuing calibration internal standard retention times. All area counts were within 50 % to 200 % of the continuing calibration area counts.

**10. Overall Assessment of Data for Use**

A total of 180 results were validated in this data memorandum. No sample results were qualified as estimated quantities (J) based on duplicate precision outliers, spike accuracy outliers, incorrect sample containers, or sample temperature outliers. A total of 180 sample results were qualified as estimated quantities with a low bias (JL or UJL) based on holding time outliers. No sample results were rejected (R).

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the analytical method(s), the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, and/or the Office of Emergency and Remedial Response Publication "National Functional Guidelines for Superfund Organic Methods Data Review, January 2017". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

H - The sample result is biased high.

J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

K - The bias of the sample is not known.

L - The sample result is biased low.

N - The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification".

- NJ - The analyte has been "tentatively identified" or "presumptively" as present and the associated numerical value is the estimated concentration in the sample.
- Q - Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.
- R - The data is rejected and unusable. The analyte may or may not be present in the sample.
- U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.



FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87597-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070203

Lab Sample ID: 580-87597-1

Matrix: Solid

Lab File ID: 072319\_0047.D

Analysis Method: 8260C

Date Collected: 07/10/2019 09:15

Sample wt/vol: 5.758(g)

Date Analyzed: 07/24/2019 05:03

Soil Aliquot Vol: \_\_\_\_\_

Dilution Factor: 1

Soil Extract Vol.: \_\_\_\_\_

GC Column: DB-VRX ID: 0.25 (mm)

% Moisture: 58.1

Level: (low/med) Low

Analysis Batch No.: 306461

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-71-8	Dichlorodifluoromethane	ND	H	4.1	1.0
74-87-3	Chloromethane	ND	H	10	1.9
75-01-4	Vinyl chloride	ND	H	4.1	0.62
74-83-9	Bromomethane	ND	H	2.1	0.44
75-00-3	Chloroethane	ND	H	21	3.3
75-69-4	Trichlorofluoromethane	ND	H	4.1	0.62
75-35-4	1,1-Dichloroethene	ND	H	10	2.3
75-09-2	Methylene Chloride	ND	H	83	21
156-60-5	trans-1,2-Dichloroethene	ND	H	4.1	0.83
75-34-3	1,1-Dichloroethane	ND	H	2.1	0.39
594-20-7	2,2-Dichloropropane	ND	H	10	1.9
156-59-2	cis-1,2-Dichloroethene	ND	H	6.2	1.2
74-97-5	Bromochloromethane	ND	H	4.1	0.52
67-66-3	Chloroform	ND	H	4.1	0.62
71-55-6	1,1,1-Trichloroethane	ND	H	4.1	0.62
56-23-5	Carbon tetrachloride	ND	H	4.1	0.62
563-58-6	1,1-Dichloropropene	ND	H	4.1	0.62
71-43-2	Benzene	ND	H	4.1	0.81
107-06-2	1,2-Dichloroethane	ND	H	2.1	0.41
79-01-6	Trichloroethene	ND	H	4.1	0.62
78-87-5	1,2-Dichloropropane	ND	H	4.1	0.83
74-95-3	Dibromomethane	ND	H	2.1	0.35
75-27-4	Bromodichloromethane	ND	H	2.1	0.37
10061-01-5	cis-1,3-Dichloropropene	ND	H	2.1	0.41
108-88-3	Toluene	ND	H	21	2.7
10061-02-6	trans-1,3-Dichloropropene	ND	* H	21	2.9
79-00-5	1,1,2-Trichloroethane	ND	* H	4.1	0.52
127-18-4	Tetrachloroethene	ND	H	4.1	0.83
142-28-9	1,3-Dichloropropane	ND	* H	4.1	0.48
124-48-1	Dibromochloromethane	ND	H	3.1	0.56
106-93-4	1,2-Dibromoethane	ND	H	2.1	0.41
108-90-7	Chlorobenzene	ND	H	4.1	0.52
100-41-4	Ethylbenzene	ND	H	4.1	0.85
630-20-6	1,1,1,2-Tetrachloroethane	ND	H	6.2	1.2
79-34-5	1,1,2,2-Tetrachloroethane	ND	* H	8.3	1.9
179601-23-1	m-Xylene & p-Xylene	ND	H	21	3.5



FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87597-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070203 Lab Sample ID: 580-87597-1  
 Matrix: Solid Lab File ID: 072319\_0047.D  
 Analysis Method: 8260C Date Collected: 07/10/2019 09:15  
 Sample wt/vol: 5.758(g) Date Analyzed: 07/24/2019 05:03  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: DB-VRX ID: 0.25 (mm)  
 % Moisture: 58.1 Level: (low/med) Low  
 Analysis Batch No.: 306461 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
95-47-6	o-Xylene	ND	H	10	1.9
100-42-5	Styrene	ND	H	6.2	1.5
75-25-2	Bromoform	ND	* H	10	1.7
98-82-8	Isopropylbenzene	ND	H	4.1	0.95
108-86-1	Bromobenzene	ND	* H	21	2.1
103-65-1	N-Propylbenzene	ND	H	10	1.6
96-18-4	1,2,3-Trichloropropane	ND	* H	10	2.1
95-49-8	2-Chlorotoluene	ND	H	10	1.9
108-67-8	1,3,5-Trimethylbenzene	ND	H	10	1.7
106-43-4	4-Chlorotoluene	ND	* H	10	2.1
98-06-6	t-Butylbenzene	ND	H	6.2	1.4
95-63-6	1,2,4-Trimethylbenzene	ND	H	10	2.5
135-98-8	sec-Butylbenzene	ND	H	6.2	1.4
541-73-1	1,3-Dichlorobenzene	ND	* H	10	2.3
99-87-6	4-Isopropyltoluene	ND	H	4.1	0.83
106-46-7	1,4-Dichlorobenzene	ND	* H	10	2.0
104-51-8	n-Butylbenzene	ND	H	6.2	1.3
95-50-1	1,2-Dichlorobenzene	ND	H	21	2.7
96-12-8	1,2-Dibromo-3-Chloropropane	ND	* H	21	3.3
120-82-1	1,2,4-Trichlorobenzene	ND	H	4.1	0.87
87-61-6	1,2,3-Trichlorobenzene	ND	H	6.2	1.2
87-68-3	Hexachlorobutadiene	ND	H	6.2	1.2
91-20-3	Naphthalene	ND	H	21	3.7
1634-04-4	Methyl tert-butyl ether	ND	H	4.1	0.62

CAS NO.	SURROGATE	%REC	Q	LIMITS
2037-26-5	Toluene-d8 (Surr)	100		80-120
460-00-4	4-Bromofluorobenzene (Surr)	98		80-120
1868-53-7	Dibromofluoromethane (Surr)	104		80-120
98-08-8	Trifluorotoluene (Surr)	93		80-120
17060-07-0	1,2-Dichloroethane-d4 (Surr)	114		80-121

*Mr 8/20/19*

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87597-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070204

Lab Sample ID: 580-87597-2

Matrix: Solid

Lab File ID: 072319\_0048.D

Analysis Method: 8260C

Date Collected: 07/10/2019 09:28

Sample wt/vol: 5.904(g)

Date Analyzed: 07/24/2019 05:28

Soil Aliquot Vol: \_\_\_\_\_

Dilution Factor: 1

Soil Extract Vol.: \_\_\_\_\_

GC Column: DB-VRX ID: 0.25 (mm)

% Moisture: 8.7

Level: (low/med) Low

Analysis Batch No.: 306461

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-71-8	Dichlorodifluoromethane	ND	H	1.9	0.45
74-87-3	Chloromethane	ND	H	4.6	0.86
75-01-4	Vinyl chloride	ND	H	1.9	0.28
74-83-9	Bromomethane	ND	H	0.93	0.19
75-00-3	Chloroethane	ND	H	9.3	1.5
75-69-4	Trichlorofluoromethane	ND	H	1.9	0.28
75-35-4	1,1-Dichloroethene	ND	H	4.6	1.0
75-09-2	Methylene Chloride	ND	H	37	9.2
156-60-5	trans-1,2-Dichloroethene	ND	H	1.9	0.37
75-34-3	1,1-Dichloroethane	ND	H	0.93	0.18
594-20-7	2,2-Dichloropropane	ND	H	4.6	0.83
156-59-2	cis-1,2-Dichloroethene	ND	H	2.8	0.56
74-97-5	Bromochloromethane	ND	H	1.9	0.23
67-66-3	Chloroform	ND	H	1.9	0.28
71-55-6	1,1,1-Trichloroethane	ND	H	1.9	0.28
56-23-5	Carbon tetrachloride	ND	H	1.9	0.28
563-58-6	1,1-Dichloropropene	ND	H	1.9	0.28
71-43-2	Benzene	ND	H	1.9	0.36
107-06-2	1,2-Dichloroethane	ND	H	0.93	0.19
79-01-6	Trichloroethene	ND	H	1.9	0.28
78-87-5	1,2-Dichloropropane	ND	H	1.9	0.37
74-95-3	Dibromomethane	ND	H	0.93	0.16
75-27-4	Bromodichloromethane	ND	H	0.93	0.17
10061-01-5	cis-1,3-Dichloropropene	ND	H	0.93	0.19
108-88-3	Toluene	ND	H	9.3	1.2
10061-02-6	trans-1,3-Dichloropropene	ND	* H	9.3	1.3
79-00-5	1,1,2-Trichloroethane	ND	* H	1.9	0.23
127-18-4	Tetrachloroethene	ND	H	1.9	0.37
142-28-9	1,3-Dichloropropane	ND	* H	1.9	0.21
124-48-1	Dibromochloromethane	ND	H *	1.4	0.25
106-93-4	1,2-Dibromoethane	ND	H *	0.93	0.19
108-90-7	Chlorobenzene	ND	H	1.9	0.23
100-41-4	Ethylbenzene	ND	H	1.9	0.38
630-20-6	1,1,1,2-Tetrachloroethane	ND	H	2.8	0.55
79-34-5	1,1,2,2-Tetrachloroethane	ND	* H	3.7	0.83
179601-23-1	m-Xylene & p-Xylene	ND	H	9.3	1.6

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87597-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070204 Lab Sample ID: 580-87597-2  
 Matrix: Solid Lab File ID: 072319\_0048.D  
 Analysis Method: 8260C Date Collected: 07/10/2019 09:28  
 Sample wt/vol: 5.904(g) Date Analyzed: 07/24/2019 05:28  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: DB-VRX ID: 0.25 (mm)  
 % Moisture: 8.7 Level: (low/med) Low  
 Analysis Batch No.: 306461 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
95-47-6	o-Xylene	ND	H	4.6	0.85
100-42-5	Styrene	ND	H	2.8	0.69
75-25-2	Bromoform	ND	* H	4.6	0.78
98-82-8	Isopropylbenzene	ND	H	1.9	0.43
108-86-1	Bromobenzene	ND	* H	9.3	0.93
103-65-1	N-Propylbenzene	ND	H	4.6	0.70
96-18-4	1,2,3-Trichloropropane	ND	* H	4.6	0.93
95-49-8	2-Chlorotoluene	ND	H	4.6	0.86
108-67-8	1,3,5-Trimethylbenzene	ND	H	4.6	0.75
106-43-4	4-Chlorotoluene	ND	* H	4.6	0.93
98-06-6	t-Butylbenzene	ND	H	2.8	0.61
95-63-6	1,2,4-Trimethylbenzene	ND	H	4.6	1.1
135-98-8	sec-Butylbenzene	ND	H	2.8	0.62
541-73-1	1,3-Dichlorobenzene	ND	* H	4.6	1.0
99-87-6	4-Isopropyltoluene	ND	H	1.9	0.37
106-46-7	1,4-Dichlorobenzene	ND	* H	4.6	0.91
104-51-8	n-Butylbenzene	ND	H	2.8	0.58
95-50-1	1,2-Dichlorobenzene	ND	H	9.3	1.2
96-12-8	1,2-Dibromo-3-Chloropropane	ND	* H	9.3	1.5
120-82-1	1,2,4-Trichlorobenzene	ND	H	1.9	0.39
87-61-6	1,2,3-Trichlorobenzene	ND	H	2.8	0.56
87-68-3	Hexachlorobutadiene	ND	H	2.8	0.56
91-20-3	Naphthalene	ND	H	9.3	1.7
1634-04-4	Methyl tert-butyl ether	ND	H	1.9	0.28

CAS NO.	SURROGATE	%REC	Q	LIMITS
2037-26-5	Toluene-d8 (Surr)	98		80-120
460-00-4	4-Bromofluorobenzene (Surr)	103		80-120
1868-53-7	Dibromofluoromethane (Surr)	102		80-120
98-08-8	Trifluorotoluene (Surr)	99		80-120
17060-07-0	1,2-Dichloroethane-d4 (Surr)	114		80-121

*Handwritten signature/initials*

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87597-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070602

Lab Sample ID: 580-87597-3

Matrix: Solid

Lab File ID: 072319\_0049.D

Analysis Method: 8260C

Date Collected: 07/10/2019 12:10

Sample wt/vol: 5(g)

Date Analyzed: 07/24/2019 05:52

Soil Aliquot Vol: \_\_\_\_\_

Dilution Factor: 1

Soil Extract Vol.: \_\_\_\_\_

GC Column: DB-VRX ID: 0.25 (mm)

% Moisture: \_\_\_\_\_

Level: (low/med) Low

Analysis Batch No.: 306461

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-71-8	Dichlorodifluoromethane	ND	H	2.0	0.49
74-87-3	Chloromethane	ND	H	5.0	0.93
75-01-4	Vinyl chloride	ND	H	2.0	0.30
74-83-9	Bromomethane	ND	H	1.0	0.21
75-00-3	Chloroethane	ND	H	10	1.6
75-69-4	Trichlorofluoromethane	ND	H	2.0	0.30
75-35-4	1,1-Dichloroethene	ND	H	5.0	1.1
75-09-2	Methylene Chloride	ND	H	40	9.9
156-60-5	trans-1,2-Dichloroethene	ND	H	2.0	0.40
75-34-3	1,1-Dichloroethane	ND	H	1.0	0.19
594-20-7	2,2-Dichloropropane	ND	H	5.0	0.90
156-59-2	cis-1,2-Dichloroethene	ND	H	3.0	0.60
74-97-5	Bromochloromethane	ND	H	2.0	0.25
67-66-3	Chloroform	ND	H	2.0	0.30
71-55-6	1,1,1-Trichloroethane	ND	H	2.0	0.30
56-23-5	Carbon tetrachloride	ND	H	2.0	0.30
563-58-6	1,1-Dichloropropene	ND	H	2.0	0.30
71-43-2	Benzene	ND	H	2.0	0.39
107-06-2	1,2-Dichloroethane	ND	H	1.0	0.20
79-01-6	Trichloroethene	ND	H	2.0	0.30
78-87-5	1,2-Dichloropropane	ND	H	2.0	0.40
74-95-3	Dibromomethane	ND	H	1.0	0.17
75-27-4	Bromodichloromethane	ND	H	1.0	0.18
10061-01-5	cis-1,3-Dichloropropene	ND	H	1.0	0.20
108-88-3	Toluene	ND	H	10	1.3
10061-02-6	trans-1,3-Dichloropropene	ND	* H	10	1.4
79-00-5	1,1,2-Trichloroethane	ND	* H	2.0	0.25
127-18-4	Tetrachloroethene	ND	H	2.0	0.40
142-28-9	1,3-Dichloropropane	ND	* H	2.0	0.23
124-48-1	Dibromochloromethane	ND	H *	1.5	0.27
106-93-4	1,2-Dibromoethane	ND	H *	1.0	0.20
108-90-7	Chlorobenzene	ND	H	2.0	0.25
100-41-4	Ethylbenzene	ND	H	2.0	0.41
630-20-6	1,1,1,2-Tetrachloroethane	ND	H	3.0	0.59
79-34-5	1,1,2,2-Tetrachloroethane	ND	* H	4.0	0.90
179601-23-1	m-Xylene & p-Xylene	ND	H	10	1.7

FORM I 8260C

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87597-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070602 Lab Sample ID: 580-87597-3  
 Matrix: Solid Lab File ID: 072319\_0049.D  
 Analysis Method: 8260C Date Collected: 07/10/2019 12:10  
 Sample wt/vol: 5(g) Date Analyzed: 07/24/2019 05:52  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: DB-VRX ID: 0.25 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 306461 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
95-47-6	o-Xylene	ND	H	5.0	0.92
100-42-5	Styrene	ND	H	3.0	0.74
75-25-2	Bromoform	ND	* H	5.0	0.84
98-82-8	Isopropylbenzene	ND	H	2.0	0.46
108-86-1	Bromobenzene	ND	* H	10	1.0
103-65-1	N-Propylbenzene	ND	H	5.0	0.76
96-18-4	1,2,3-Trichloropropane	ND	* H	5.0	1.0
95-49-8	2-Chlorotoluene	ND	H	5.0	0.93
108-67-8	1,3,5-Trimethylbenzene	ND	H	5.0	0.81
106-43-4	4-Chlorotoluene	ND	* H	5.0	1.0
98-06-6	t-Butylbenzene	ND	H	3.0	0.66
95-63-6	1,2,4-Trimethylbenzene	ND	H	5.0	1.2
135-98-8	sec-Butylbenzene	ND	H	3.0	0.67
541-73-1	1,3-Dichlorobenzene	ND	* H	5.0	1.1
99-87-6	4-Isopropyltoluene	ND	H	2.0	0.40
106-46-7	1,4-Dichlorobenzene	ND	* H	5.0	0.98
104-51-8	n-Butylbenzene	ND	H	3.0	0.63
95-50-1	1,2-Dichlorobenzene	ND	H	10	1.3
96-12-8	1,2-Dibromo-3-Chloropropane	ND	* H	10	1.6
120-82-1	1,2,4-Trichlorobenzene	ND	H	2.0	0.42
87-61-6	1,2,3-Trichlorobenzene	ND	H	3.0	0.60
87-68-3	Hexachlorobutadiene	ND	H	3.0	0.60
91-20-3	Naphthalene	ND	H	10	1.8
1634-04-4	Methyl tert-butyl ether	ND	H	2.0	0.30

CAS NO.	SURROGATE	%REC	Q	LIMITS
2037-26-5	Toluene-d8 (Surr)	100		80-120
460-00-4	4-Bromofluorobenzene (Surr)	103		80-120
1868-53-7	Dibromofluoromethane (Surr)	104		80-120
98-08-8	Trifluorotoluene (Surr)	97		80-120
17060-07-0	1,2-Dichloroethane-d4 (Surr)	118		80-121

*MW 8/20/19*



## ecology and environment, inc.

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### MEMORANDUM

DATE: August 20, 2019

TO: Seth Wing, START-IV Project Manager, E & E, Seattle, WA

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington *MW*

SUBJ: **Organic Data Quality Assurance Review, May Creek Removal Action Site, Renton, Washington**

REF: TO: TO-68HE0718F0470 PAN: 1004530.0470 001.01

The data quality assurance review of two soil samples collected from the May Creek Removal Action site located in Renton, Washington, has been completed. Analysis for Extended Diesel Range Total Petroleum Hydrocarbons (Ecology Method NW7 PH-Dx) was performed by Test America, Inc., Tacoma, Washington. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Manual Process (S2B/4VM).

The samples were numbered: 19070203 19070204

#### Data Qualifications:

##### 1. **Sample Holding Times: Acceptable.**

The samples were maintained and received within the QC limits of  $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ . The samples were collected on July 10, 2019, extracted on July 23, 2019, and analyzed by July 28, 2019, therefore meeting QC criteria of less than 14 days between collection and extraction for soil samples and less than 40 days between extraction and analysis.

##### 2. **Initial Calibration: Acceptable.**

Calculations were verified as correct. All relative percent differences (RPDs) were within the laboratory control limits.

##### 3. **Continuing Calibration: Satisfactory.**

Calculations were verified as correct. All percent differences (%Ds) were within the laboratory control limits except the SMC o-terphenyl with a low recovery on July 28, 2019 at 16:13; no qualifications were required as all o-terphenyl sample recoveries were within QC limits.

##### 4. **Blanks: Acceptable.**

A method blank was analyzed for each extraction batch for each matrix and analysis system. Diesel- and motor oil-range TPHs were not detected in the method blank.

**5. System Monitoring Compounds (SMC): Acceptable.**

All recoveries of the SMCs were within QC limits.

**6. Blank Spike (BS) and BS Duplicate (BSD): Acceptable.**

BS and BSD recoveries were within QC limits.

**7. Duplicates: Acceptable.**

All spike duplicate results were within QC limits.

**8. Quantitation and Quantitation Limits: Acceptable.**

Sample concentrations were correctly calculated.

**9. Laboratory Contact: Not Required.**

No laboratory contact was required.

**10. Overall Assessment of Data for Use**

A total of 4 results were validated in this data memorandum. No sample results were qualified as estimated quantities (J) based on duplicate precision outliers, spike accuracy outliers, holding time outliers, incorrect sample containers, or sample temperature outliers. No sample results were rejected (R).

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the analytical method(s), the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, and/or the Office of Emergency and Remedial Response Publication "National Functional Guidelines for Superfund Organic Methods Data Review, January 2017". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

H - The sample result is biased high.

J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

K - The bias of the sample is not known.

L - The sample result is biased low.

Q - Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.

R - The data is rejected and unusable. The analyte may or may not be present in the sample.

- U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.



FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87597-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070203 Lab Sample ID: 580-87597-1  
 Matrix: Solid Lab File ID: 004F0701.D  
 Analysis Method: NWTPH-Dx Date Collected: 07/10/2019 09:15  
 Extraction Method: 3546 Date Extracted: 07/23/2019 11:06  
 Sample wt/vol: 10.144(g) Date Analyzed: 07/28/2019 17:44  
 Con. Extract Vol.: 10(mL) Dilution Factor: 1  
 Injection Volume: 1(uL) GC Column: ZB-1HT ID: 0.25 (mm)  
 % Moisture: 58.1 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 306831 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00163	#2 Diesel (C10-C24)	43	JQ	120	29
STL00299	Motor Oil (>C24-C36)	340		120	41

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	97		50-150

*MW 8-20-19*

FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87597-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070204 Lab Sample ID: 580-87597-2  
 Matrix: Solid Lab File ID: 005F0801.D  
 Analysis Method: NWTPH-Dx Date Collected: 07/10/2019 09:28  
 Extraction Method: 3546 Date Extracted: 07/23/2019 11:06  
 Sample wt/vol: 11.534(g) Date Analyzed: 07/28/2019 18:06  
 Con. Extract Vol.: 10(mL) Dilution Factor: 20  
 Injection Volume: 1(uL) GC Column: ZB-1HT ID: 0.25(mm)  
 % Moisture: 8.7 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 306831 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00163	#2 Diesel (C10-C24)	280	<u>Q</u>	950	230
STL00299	Motor Oil (>C24-C36)	4800		950	330

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	50		50-150

*MW 820/9*



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### MEMORANDUM

DATE: August 20, 2019

TO: Seth Wing, START-IV Project Manager, E & E, Seattle, WA

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington 

SUBJ: **Organic Data Quality Assurance Review, May Creek Removal Action Site, Renton, Washington**

REF: TO: TO-68HE0718F0470      PAN: 1004530.0470.001.01

The data quality assurance review of 2 soil samples collected from the May Creek Removal Action site located in Renton, Washington, has been completed. Analyses for Chlorinated Pesticides (EPA Method 8081) and Polychlorinated Biphenyls (PCBs - EPA Method 8082) were performed by Test America, Inc., Tacoma, Washington. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Manual Process (S2B/4VM).

The samples were numbered: 19070203      19070204

#### Data Qualifications:

##### 1. **Sample Holding Times: Acceptable.**

The samples were maintained and received within the QC limits of 0°C to 6°C. The samples were collected on July 10, 2019, extracted on July 19, 2019, and were analyzed by July 30, 2019, therefore meeting QC criteria of less than 14 days between collection and soil sample extraction and less than 40 days between extraction and analysis. There are no holding time limits for Method 8082 PCBs.

##### 2. **Instrument Performance: Acceptable.**

The surrogate retention time percent difference between the initial calibration standards and the remaining standards and samples was within QC limits.

##### 3. **Initial and Continuing Calibration: Satisfactory.**

All initial calibration relative standard deviations (RSDs) were within QC limits. All continuing calibration % differences (% D) were within QC limits except some high PCB peak results; no actions were taken based on this outlier as all no PCBs were detected in the samples. Additionally, endrin was higher than QC limits in one continuing calibration (no actions were taken based on this outlier as it wasn't detected in any samples) and Toxaphene, 4,4'-DDT, 4,4'-DDE, and endrin aldehyde were below QC limits on one column (associated positive results were qualified as estimated quantities with a low bias [JL]).

##### 4. **Blanks: Acceptable.**

A method blank was prepared at the required frequency of every time samples were extracted for

each matrix and for each concentration level, or every 20 samples, whichever is greater, and for each analytical system. No target analytes were detected in the laboratory blanks.

**5. Performance Evaluation Samples: Not Provided.**

Performance evaluation samples were not provided to the laboratory.

**6. System Monitoring Compounds (SMCs): Satisfactory.**

All recoveries of the SMCs were within QC limits except a high outlier in the method blank; no actions were taken as there were no detections in the method blank.

**7. Blank Spike (BS) and BS Duplicate (BSD) Analyses: Acceptable.**

BS and BSD recoveries were within QC limits.

**8. Duplicates: Acceptable.**

Relative Percent Differences (RPDs) of all spiked analytes were within the required control limits.

**9. Compound Identification: Acceptable.**

All positive sample results were dual-column confirmed with differences between the columns less than 40% except 4,4'-DDE in sample 19070203; the lower value was reported, and the associated sample result was qualified as an estimated quantity with an unknown bias (JK).

**10. Target Compound Quantitation and Quantitation Limits: Acceptable.**

Sample results and quantitation limits were correctly calculated.

**11. Laboratory Contact**

No laboratory contact was required.

**12. Overall Assessment**

A total of 56 results were validated in this data memorandum. No sample results were qualified as estimated quantities (J) based on duplicate precision outliers, holding time outliers, incorrect sample containers, or sample temperature outliers. No sample results were rejected (R). A total of 40 sample results were qualified as estimated quantities (UJ) based on spike accuracy outliers.

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result. This updated memorandum provides additional results that weren't provided in the original submittal.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the analytical method(s), the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, and/or the Office of Emergency and Remedial Response Publication "National Functional Guidelines for Superfund Organic Methods Data Review, January 2017". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

### Data Qualifiers and Definitions

- H - The sample result is biased high.
- J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
- K - The bias of the sample is not known.
- L - The sample result is biased low.
- Q - Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.
- R - The data is rejected and unusable. The analyte may or may not be present in the sample.
- U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.

FORM I  
PESTICIDES ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87597-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070203 Lab Sample ID: 580-87597-1  
 Matrix: Solid Lab File ID: 45F072619a019.D  
 Analysis Method: 8081B Date Collected: 07/10/2019 09:15  
 Extraction Method: 3546 Date Extracted: 07/19/2019 13:39  
 Sample wt/vol: 11.272(g) Date Analyzed: 07/26/2019 22:53  
 Con. Extract Vol.: 10(mL) Dilution Factor: 1  
 Injection Volume: 1(uL) GC Column: ZB-CLPest-1 ID: 0.25 (mm)  
 % Moisture: 58.1 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 306695 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
1031-07-8	Endosulfan sulfate	ND		4.2	0.59
7421-93-4	Endrin aldehyde	ND		42	10
72-43-5	Methoxychlor	ND		21	0.78
53494-70-5	Endrin ketone	ND		4.2	0.89

CAS NO.	SURROGATE	%REC	Q	LIMITS
877-09-8	Tetrachloro-m-xylene	63		50-123
2051-24-3	DCB Decachlorobiphenyl	81		36-136

*mw 8/20/19*

FORM I  
PESTICIDES ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87597-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070203 RA Lab Sample ID: 580-87597-1 RA  
 Matrix: Solid Lab File ID: 45F072919a020.D  
 Analysis Method: 8081B Date Collected: 07/10/2019 09:15  
 Extraction Method: 3546 Date Extracted: 07/19/2019 13:39  
 Sample wt/vol: 11.272(g) Date Analyzed: 07/29/2019 23:54  
 Con. Extract Vol.: 10 (mL) Dilution Factor: 1  
 Injection Volume: 1 (uL) GC Column: ZB-CLPest-1 ID: 0.25 (mm)  
 % Moisture: 58.1 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 306904 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
309-00-2	Aldrin	ND		6.4	0.81
319-84-6	alpha-BHC	ND		4.2	0.34
319-85-7	beta-BHC	ND		11	0.53
319-86-8	delta-BHC	ND		6.4	0.59
58-89-9	gamma-BHC (Lindane)	ND		4.2	1.6
72-54-8	4,4'-DDD	3.5	J	4.2	0.49
72-55-9	4,4'-DDE	1.2	J	4.2	0.78
50-29-3	4,4'-DDT	ND		4.2	0.78
60-57-1	Dieldrin	ND		4.2	0.74
959-98-8	Endosulfan I	ND		4.2	0.72
33213-65-9	Endosulfan II	ND		4.2	0.55
72-20-8	Endrin	ND		4.2	1.0
76-44-8	Heptachlor	ND		6.4	0.40
1024-57-3	Heptachlor epoxide	ND		6.4	0.64
8001-35-2	Toxaphene	ND		210	53
5103-74-2	trans-Chlordane	1.1	J	6.4	0.68

CAS NO.	SURROGATE	%REC	Q	LIMITS
877-09-8	Tetrachloro-m-xylene	60		50-123
2051-24-3	DCB Decachlorobiphenyl	78		36-136

*MW 8/20/19*

FORM I  
PESTICIDES ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87597-1  
SDG No.: \_\_\_\_\_  
Client Sample ID: 19070203 RA Lab Sample ID: 580-87597-1 RA  
Matrix: Solid Lab File ID: 45F072919a020.D  
Analysis Method: 8081B Date Collected: 07/10/2019 09:15  
Extraction Method: 3546 Date Extracted: 07/19/2019 13:39  
Sample wt/vol: 11.272(g) Date Analyzed: 07/29/2019 23:54  
Con. Extract Vol.: 10(mL) Dilution Factor: 1  
Injection Volume: 1(uL) GC Column: ZB-CLPest-2 ID: 0.25(mm)  
% Moisture: 58.1 GPC Cleanup: (Y/N) N  
Analysis Batch No.: 306904 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
5103-71-9	cis-Chlordane	<del>ND</del> <i>in</i>		4.2 <i>U</i>	1.6

*MW 8/20/19*



FORM I  
PCBS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87597-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070203 Lab Sample ID: 580-87597-1  
 Matrix: Solid Lab File ID: 35F072919a040.d  
 Analysis Method: 8082A Date Collected: 07/10/2019 09:15  
 Extraction Method: 3546 Date Extracted: 07/19/2019 13:39  
 Sample wt/vol: 11.272(g) Date Analyzed: 07/29/2019 22:44  
 Con. Extract Vol.: 10 (mL) Dilution Factor: 1  
 Injection Volume: 1 (uL) GC Column: ZB-CLPest-1 ID: 0.25 (mm)  
 % Moisture: 58.1 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 306960 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
12674-11-2	PCB-1016	ND		0.042	0.016
11104-28-2	PCB-1221	ND		0.042	0.0089
11141-16-5	PCB-1232	ND		0.042	0.010
53469-21-9	PCB-1242	ND		0.042	0.0074
12672-29-6	PCB-1248	ND		0.042	0.0061
11097-69-1	PCB-1254	ND		0.042	0.0078
11096-82-5	PCB-1260	ND		0.042	0.016

CAS NO.	SURROGATE	%REC	Q	LIMITS
2051-24-3	DCB Decachlorobiphenyl	57		39-142
877-09-8	Tetrachloro-m-xylene	84		35-129

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FORM I  
PESTICIDES ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87597-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070204

Lab Sample ID: 580-87597-2

Matrix: Solid

Lab File ID: 45F072919a021.D

Analysis Method: 8081B

Date Collected: 07/10/2019 09:28

Extraction Method: 3546

Date Extracted: 07/19/2019 13:39

Sample wt/vol: 11.188(g)

Date Analyzed: 07/30/2019 00:17

Con. Extract Vol.: 10(mL)

Dilution Factor: 3

Injection Volume: 1(uL)

GC Column: ZB-CLPest-1 ID: 0.25 (mm)

% Moisture: 8.7

GPC Cleanup: (Y/N) N

Analysis Batch No.: 306904

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
309-00-2	Aldrin	ND		8.8	1.1
319-84-6	alpha-BHC	ND		5.9	0.47
319-85-7	beta-BHC	ND		15	0.73
319-86-8	delta-BHC	7.7	JQ	8.8	0.82
58-89-9	gamma-BHC (Lindane)	ND		5.9	2.2
72-54-8	4,4'-DDD	9.9		5.9	0.68
72-55-9	4,4'-DDE	6.9	JL	5.9	1.1
50-29-3	4,4'-DDT	4.8	JQ	5.9	1.1
60-57-1	Dieldrin	1.8	JQ	5.9	1.0
959-98-8	Endosulfan I	ND		5.9	1.0
33213-65-9	Endosulfan II	ND		5.9	0.76
72-20-8	Endrin	ND		5.9	1.4
76-44-8	Heptachlor	ND		8.8	0.56
1024-57-3	Heptachlor epoxide	ND		8.8	0.88
8001-35-2	Toxaphene	ND		290	73
5103-71-9	cis-Chlordane	ND		5.9	2.2
5103-74-2	trans-Chlordane	3.2	JQ	8.8	0.94

CAS NO.	SURROGATE	%REC	Q	LIMITS
877-09-8	Tetrachloro-m-xylene	67	/	50-123
2051-24-3	DCB Decachlorobiphenyl	179	/	36-136

*MW 8/20/19*

FORM I  
PESTICIDES ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87597-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070204 Lab Sample ID: 580-87597-2  
 Matrix: Solid Lab File ID: 45F072619a020.D  
 Analysis Method: 8081B Date Collected: 07/10/2019 09:28  
 Extraction Method: 3546 Date Extracted: 07/19/2019 13:39  
 Sample wt/vol: 11.188(g) Date Analyzed: 07/26/2019 23:40  
 Con. Extract Vol.: 10(mL) Dilution Factor: 5  
 Injection Volume: 1(uL) GC Column: ZB-CLPest-1 ID: 0.25(mm)  
 % Moisture: 8.7 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 306695 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
1031-07-8	Endosulfan sulfate	ND		9.8	1.4
7421-93-4	Endrin aldehyde	ND		98	23
72-43-5	Methoxychlor	ND		49	1.8
53494-70-5	Endrin ketone	ND		9.8	2.1

CAS NO.	SURROGATE	%REC	Q	LIMITS
877-09-8	Tetrachloro-m-xylene	103		50-123
2051-24-3	DCB Decachlorobiphenyl	85		36-136

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FORM I  
PCBS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87597-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070204 Lab Sample ID: 580-87597-2  
 Matrix: Solid Lab File ID: 35F072919a041.d  
 Analysis Method: 8082A Date Collected: 07/10/2019 09:28  
 Extraction Method: 3546 Date Extracted: 07/19/2019 13:39  
 Sample wt/vol: 11.188(g) Date Analyzed: 07/29/2019 23:01  
 Con. Extract Vol.: 10(mL) Dilution Factor: 1  
 Injection Volume: 1(uL) GC Column: ZB-CLPest-1 ID: 0.25 (mm)  
 % Moisture: 8.7 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 306960 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
12674-11-2	PCB-1016	ND		0.020	0.0072
11104-28-2	PCB-1221	ND		0.020	0.0041
11141-16-5	PCB-1232	ND		0.020	0.0048
53469-21-9	PCB-1242	ND		0.020	0.0034
12672-29-6	PCB-1248	ND		0.020	0.0028
11097-69-1	PCB-1254	ND		0.020	0.0036
11096-82-5	PCB-1260	ND		0.020	0.0072

CAS NO.	SURROGATE	%REC	Q	LIMITS
2051-24-3	DCB Decachlorobiphenyl	69		39-142
877-09-8	Tetrachloro-m-xylene	83		35-129

*mw 8/20/19*



## ecology and environment, inc.

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### MEMORANDUM

DATE: August 20, 2019

TO: Seth Wing, START-IV Project Manager, E & E, Seattle, WA

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington *MW*

SUBJ: **Organic Data Quality Assurance Review, May Creek Removal Action Site, Renton, Washington**

REF: TO: TO-68HE0718F0470 PAN: 1004530.0470.001.01

The data quality assurance review of 3 soil samples, including one field blank, collected from the May Creek Removal Action site located in Renton, Washington, has been completed. Analysis for Extended Gasoline Range Total Petroleum Hydrocarbons (Ecology Method NWTPH-Gx) analyses was performed by Test America, Inc., Tacoma, Washington. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Manual Process (S2B/4VM).

The samples were numbered: 19070203 19070204 19070602

#### Data Qualifications:

##### 1. Sample Holding Times: Satisfactory.

The samples were maintained and received within the QC limits of  $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ . The samples were collected on July 10, 2019, were received at the laboratory within 48 hours of collection, and were analyzed by July 25, 2019, therefore meeting QC criteria of less than 14 days between collection and analysis for soil samples. Sample 19070602 was not frozen within 48 hours of collection; therefore, the associated sample quantitation limits were qualified as estimated quantities with a low bias (UJL).

##### 2. Initial Calibration: Acceptable.

Calculations were verified as correct. All relative percent differences (RPDs) were less than or equal to the laboratory control limits.

##### 3. Continuing Calibration: Satisfactory.

Calculations were verified as correct. All percent differences were less than or equal to the laboratory control limits except a low recovery associated with samples 19070203 and 19070204; associated positive results and sample quantitation limits were qualified as estimated quantities with a low bias (JL or UJL).

##### 4. Blanks: Acceptable.

A method blank was analyzed at the required frequency of every 12 hours for each matrix,

preparation technique, and analysis system. Gasoline-range TPHs were not detected in the method blank or in the trip blank.

**5. System Monitoring Compounds (SMC): Acceptable.**

All recoveries of the SMCs were greater than 10% and within QC limits.

**6. Blank Spikes (BS) and BS Duplicate (BSD) Analyses: Acceptable.**

BS and BSD results were within laboratory QC limits.

**7. Duplicates: Acceptable.**

All duplicate and spike duplicate results were within laboratory QC limits.

**8. Quantitation and Quantitation Limits: Acceptable.**

Sample quantitation and sample quantitation limits were correctly calculated.

**9. Laboratory Contact: Not Required.**

No laboratory contact was required.

**10. Overall Assessment of Data for Use**

The positive result in sample 19070203 was a result of discrete peaks; the associated sample result was qualified as an estimated quantity with a high bias (JH).

A total of three results were validated in this data memorandum. No sample results were qualified as estimated quantities (J) based on duplicate precision outliers, spike accuracy outliers, incorrect sample containers, or sample temperature outliers. No sample results were rejected (R). One result was qualified as an estimated quantity with a low bias based on holding time outliers.

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the analytical method(s), the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, and/or the Office of Emergency and Remedial Response Publication "National Functional Guidelines for Superfund Organic Methods Data Review, January 2017". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

H - The sample result is biased high.

J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

K - The bias of the sample is not known.

- L - The sample result is biased low.
- Q - Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.
- R - The data is rejected and unusable. The analyte may or may not be present in the sample.
- U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.

FORM I  
GC VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87597-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070203 Lab Sample ID: 580-87597-1  
 Matrix: Solid Lab File ID: 07161931.D  
 Analysis Method: NWTPH-Gx Date Collected: 07/10/2019 09:15  
 Sample wt/vol: 12.576(g) Date Analyzed: 07/17/2019 01:15  
 Soil Aliquot Vol: 1.075 (mL) Dilution Factor: 1  
 Soil Extract Vol.: 10 (mL) GC Column: RTX-VRX ID: 0.45 (mm)  
 % Moisture: 58.1 Level: (low/med) Medium  
 Analysis Batch No.: 305786 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00228	Gasoline	16	<i>JK</i>	16	7.6

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	100		50-150

*MuB20/19*



FORM I  
GC VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87597-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070204 Lab Sample ID: 580-87597-2  
 Matrix: Solid Lab File ID: 07161932.D  
 Analysis Method: NWTPH-Gx Date Collected: 07/10/2019 09:28  
 Sample wt/vol: 12.543(g) Date Analyzed: 07/17/2019 01:46  
 Soil Aliquot Vol: 1.075 (mL) Dilution Factor: 1  
 Soil Extract Vol.: 10 (mL) GC Column: RTX-VRX ID: 0.45 (mm)  
 % Moisture: 8.7 Level: (low/med) Medium  
 Analysis Batch No.: 305786 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00228	Gasoline	<del>ND</del> <i>mu</i>		4.8	<i>U-JL</i> 2.2

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	99		50-150

*mu/820-19*

FORM I  
GC VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87597-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070602 Lab Sample ID: 580-87597-3  
 Matrix: Solid Lab File ID: 07251919.D  
 Analysis Method: NWTPH-Gx Date Collected: 07/10/2019 12:10  
 Sample wt/vol: 10(g) Date Analyzed: 07/25/2019 18:59  
 Soil Aliquot Vol: 1.075 (mL) Dilution Factor: 1  
 Soil Extract Vol.: 10 (mL) GC Column: RTX-VRX ID: 0.45 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Medium  
 Analysis Batch No.: 306688 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00228	Gasoline	<i>ND</i>	<i>W/W</i>	5.0	<i>W/L</i> 2.3

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	111		50-150

*mw 8-20-19*



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### MEMORANDUM

DATE: August 20, 2019

TO: Seth Wing, START-IV Project Manager, E & E, Seattle, WA

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington *MW*

SUBJ: **Organic Data Quality Assurance Review, May Creek Removal Action Site, Renton, Washington**

REF: TO: TO-68HE0718F0470 PAN: 1004530.0470.001.01

The data quality assurance review of 2 soil samples collected from the May Creek Removal Action site in Renton, Washington, has been completed. Semivolatile Organic Compound (SVOC) analysis (EPA Method 8270) was performed by Test America, Inc., Tacoma, Washington. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Manual Process (S2B/4VM).

The samples were numbered: 19070203 19070204

#### Data Qualifications:

1. **Sample Holding Times: Acceptable.**

The samples were maintained and received within the QC limits of 0°C to 6°C. The samples were collected on July 10, 2019, were extracted on July 19, 2019, and were analyzed by July 22, 2019, therefore meeting holding time criteria of less than 14 days between collection and extraction and less than 40 days between extraction and analysis.

2. **Tuning: Acceptable.**

Tuning was performed at the beginning of each 12-hour analysis sequence. All results were within QC limits.

3. **Initial Calibration: Acceptable.**

All average Relative Response Factors (RRFs) were within the QC limits. All Relative Standard Deviations (RSDs) were within the QC limits.

4. **Continuing Calibration: Satisfactory.**

All RRFs were within the QC limits except n-nitroso-di-n-propyl amine; associated sample quantitation limits were rejected (R). All % differences were within the QC limits.

5. **Blanks: Satisfactory.**

A method blank was analyzed for each 20 sample batch per matrix. There were no detections in any method blank except butyl benzyl phthalate (112 ug/kg). Associated positive sample results less than the reporting limit were qualified as not detected (U).

**6. System Monitoring Compounds (SMCs): Satisfactory.**

All SMC recoveries were within QC limits except in sample 19070204 (no actions were taken due to matrix interference) and a low recovery in the method blank (no actions were taken as all other SMCs were within QC limits).

**7. Blank Spike (BS) Analysis: Acceptable.**

BS analysis was performed per SDG or per matrix per concentration level, whichever was more frequent. All recoveries were within QC limits.

**8. Internal Standards: Acceptable.**

All internal standards (IS) were within  $\pm 30$  seconds of the continuing calibration IS retention times. All area counts were within 50 % to 200 % of the continuing calibration area counts.

**9. Overall Assessment of Data for Use**

A total of 134 results were validated in this data memorandum. No sample results were qualified as estimated quantities (J) based on duplicate precision outliers, spike accuracy outliers, holding time outliers, incorrect sample containers, or sample temperature outliers. The following analyte was detected in the method blank: butyl benzyl phthalate. Two sample results were rejected (R).

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the analytical method(s), the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, and/or the Office of Emergency and Remedial Response Publication "National Functional Guidelines for Superfund Organic Methods Data Review, January 2017". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

H - The sample result is biased high.

J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

K - The bias of the sample is not known.

L - The sample result is biased low.

N - The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification".

NJ - The analyte has been "tentatively identified" or "presumptively" as present and the associated numerical value is the estimated concentration in the sample.

Q - Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.

R - The data is rejected and unusable. The analyte may or may not be present in the sample.

- U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.

FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87597-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070203

Lab Sample ID: 580-87597-1

Matrix: Solid

Lab File ID: 0722A020.D

Analysis Method: 8270D

Date Collected: 07/10/2019 09:15

Extract. Method: 3550B

Date Extracted: 07/19/2019 10:03

Sample wt/vol: 10.013(g)

Date Analyzed: 07/22/2019 17:46

Con. Extract Vol.: 10(mL)

Dilution Factor: 1

Injection Volume: 1(uL)

Level: (low/med) Low

% Moisture: 58.1

GPC Cleanup: (Y/N) N

Analysis Batch No.: 306240

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
108-95-2	Phenol	ND		360	55
111-44-4	Bis(2-chloroethyl)ether	ND		240	18
95-57-8	2-Chlorophenol	ND		480	31
541-73-1	1,3-Dichlorobenzene	ND		120	11
106-46-7	1,4-Dichlorobenzene	ND		120	20
100-51-6	Benzyl alcohol	ND		1200	180
95-50-1	1,2-Dichlorobenzene	ND		120	29
95-48-7	2-Methylphenol	ND		360	23
15831-10-4	3 & 4 Methylphenol	ND		480	36
621-64-7	N-Nitrosodi-n-propylamine	ND		480	52
67-72-1	Hexachloroethane	ND		360	21
98-95-3	Nitrobenzene	ND		480	48
78-59-1	Isophorone	ND		360	18
88-75-5	2-Nitrophenol	ND		480	50
105-67-9	2,4-Dimethylphenol	ND		240	36
65-85-0	Benzoic acid	1700	J	4800	1400
111-91-1	Bis(2-chloroethoxy)methane	ND		480	43
120-83-2	2,4-Dichlorophenol	ND		240	36
120-82-1	1,2,4-Trichlorobenzene	ND		120	14
91-20-3	Naphthalene	ND		60	12
106-47-8	4-Chloroaniline	ND		3600	950
87-68-3	Hexachlorobutadiene	ND		120	36
59-50-7	4-Chloro-3-methylphenol	ND		360	79
91-57-6	2-Methylnaphthalene	ND		120	21
77-47-4	Hexachlorocyclopentadiene	ND		240	48
88-06-2	2,4,6-Trichlorophenol	ND		360	86
95-95-4	2,4,5-Trichlorophenol	ND		480	110
91-58-7	2-Chloronaphthalene	ND		60	12
88-74-4	2-Nitroaniline	ND		240	36
131-11-3	Dimethyl phthalate	ND		360	31
208-96-8	Acenaphthylene	ND		60	12
606-20-2	2,6-Dinitrotoluene	ND		360	81
99-09-2	3-Nitroaniline	ND		480	95
83-32-9	Acenaphthene	ND		60	12

FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87597-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070203

Lab Sample ID: 580-87597-1

Matrix: Solid

Lab File ID: 0722A020.D

Analysis Method: 8270D

Date Collected: 07/10/2019 09:15

Extract. Method: 3550B

Date Extracted: 07/19/2019 10:03

Sample wt/vol: 10.013(g)

Date Analyzed: 07/22/2019 17:46

Con. Extract Vol.: 10(mL)

Dilution Factor: 1

Injection Volume: 1(uL)

Level: (low/med) Low

% Moisture: 58.1

GPC Cleanup: (Y/N) N

Analysis Batch No.: 306240

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
51-28-5	2,4-Dinitrophenol	ND		2400	480
100-02-7	4-Nitrophenol	ND		3600	880
132-64-9	Dibenzofuran	ND		360	14
121-14-2	2,4-Dinitrotoluene	ND		480	100
84-66-2	Diethyl phthalate	ND		3600	180
7005-72-3	4-Chlorophenyl phenyl ether	ND		480	15
86-73-7	Fluorene	ND		60	12
100-01-6	4-Nitroaniline	ND		360	120
534-52-1	4,6-Dinitro-2-methylphenol	ND		2400	240
86-30-6	N-Nitrosodiphenylamine	ND		140	19
101-55-3	4-Bromophenyl phenyl ether	ND		480	22
118-74-1	Hexachlorobenzene	ND		120	36
87-86-5	Pentachlorophenol	ND		1100	310
85-01-8	Phenanthrene	ND		140	29
120-12-7	Anthracene	ND		60	12
84-74-2	Di-n-butyl phthalate	ND		1200	140
206-44-0	Fluoranthene	16 JQ		60	12
129-00-0	Pyrene	ND		140	15
85-68-7	Butyl benzyl phthalate	ND		480	120
91-94-1	3,3'-Dichlorobenzidine	ND		950	240
56-55-3	Benzo[a]anthracene	ND		60	12
218-01-9	Chrysene	ND		140	31
117-81-7	Bis(2-ethylhexyl) phthalate	250 JQ		1400	170
117-84-0	Di-n-octyl phthalate	ND		360	140
50-32-8	Benzo[a]pyrene	ND		140	31
193-39-5	Indeno[1,2,3-cd]pyrene	ND		95	12
53-70-3	Dibenz(a,h)anthracene	ND		120	29
191-24-2	Benzo[g,h,i]perylene	ND		140	21
86-74-8	Carbazole	ND		360	20
90-12-0	1-Methylnaphthalene	ND		72	12
205-99-2	Benzo[b]fluoranthene	ND		60	12
207-08-9	Benzo[k]fluoranthene	ND		140	33
108-60-1	bis(chloroisopropyl) ether	ND		480	33

FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87597-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070203 Lab Sample ID: 580-87597-1  
 Matrix: Solid Lab File ID: 0722A020.D  
 Analysis Method: 8270D Date Collected: 07/10/2019 09:15  
 Extract. Method: 3550B Date Extracted: 07/19/2019 10:03  
 Sample wt/vol: 10.013(g) Date Analyzed: 07/22/2019 17:46  
 Con. Extract Vol.: 10(mL) Dilution Factor: 1  
 Injection Volume: 1(uL) Level: (low/med) Low  
 % Moisture: 58.1 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 306240 Units: ug/Kg

CAS NO.	SURROGATE	%REC	Q	LIMITS
367-12-4	2-Fluorophenol (Surr)	93		60-125
4165-62-2	Phenol-d5 (Surr)	91		59-120
4165-60-0	Nitrobenzene-d5 (Surr)	82		62-120
321-60-8	2-Fluorobiphenyl	78		57-120
118-79-6	2,4,6-Tribromophenol (Surr)	89		52-125
1718-51-0	Terphenyl-d14 (Surr)	110		58-120

*Musgraff*



FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87597-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070204

Lab Sample ID: 580-87597-2

Matrix: Solid

Lab File ID: 0722A021.D

Analysis Method: 8270D

Date Collected: 07/10/2019 09:28

Extract. Method: 3550B

Date Extracted: 07/19/2019 10:03

Sample wt/vol: 13.517(g)

Date Analyzed: 07/22/2019 18:10

Con. Extract Vol.: 10(mL)

Dilution Factor: 50

Injection Volume: 1(uL)

Level: (low/med) Low

% Moisture: 8.7

GPC Cleanup: (Y/N) N

Analysis Batch No.: 306240

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
108-95-2	Phenol	ND		6100	930
111-44-4	Bis(2-chloroethyl)ether	ND		4100	310
95-57-8	2-Chlorophenol	ND		8100	530
541-73-1	1,3-Dichlorobenzene	ND		2000	190
106-46-7	1,4-Dichlorobenzene	ND		2000	340
100-51-6	Benzyl alcohol	ND		20000	3100
95-50-1	1,2-Dichlorobenzene	ND		2000	490
95-48-7	2-Methylphenol	ND		6100	400
15831-10-4	3 & 4 Methylphenol	ND		8100	610
621-64-7	N-Nitrosodi-n-propylamine	ND		8100	890
67-72-1	Hexachloroethane	ND		6100	360
98-95-3	Nitrobenzene	ND		8100	810
78-59-1	Isophorone	ND		6100	300
88-75-5	2-Nitrophenol	ND		8100	850
105-67-9	2,4-Dimethylphenol	ND		4100	610
65-85-0	Benzoic acid	ND		81000	23000
111-91-1	Bis(2-chloroethoxy)methane	ND		8100	730
120-83-2	2,4-Dichlorophenol	ND		4100	610
120-82-1	1,2,4-Trichlorobenzene	ND		2000	240
91-20-3	Naphthalene	ND		1000	200
106-47-8	4-Chloroaniline	ND		61000	16000
87-68-3	Hexachlorobutadiene	ND		2000	610
59-50-7	4-Chloro-3-methylphenol	ND		6100	1300
91-57-6	2-Methylnaphthalene	ND		2000	360
77-47-4	Hexachlorocyclopentadiene	ND		4100	810
88-06-2	2,4,6-Trichlorophenol	ND		6100	1500
95-95-4	2,4,5-Trichlorophenol	ND		8100	1800
91-58-7	2-Chloronaphthalene	ND		1000	200
88-74-4	2-Nitroaniline	ND		4100	610
131-11-3	Dimethyl phthalate	ND		6100	530
208-96-8	Acenaphthylene	ND		1000	200
606-20-2	2,6-Dinitrotoluene	ND		6100	1400
99-09-2	3-Nitroaniline	ND		8100	1600
83-32-9	Acenaphthene	ND		1000	200

FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87597-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070204

Lab Sample ID: 580-87597-2

Matrix: Solid

Lab File ID: 0722A021.D

Analysis Method: 8270D

Date Collected: 07/10/2019 09:28

Extract. Method: 3550B

Date Extracted: 07/19/2019 10:03

Sample wt/vol: 13.517(g)

Date Analyzed: 07/22/2019 18:10

Con. Extract Vol.: 10(mL)

Dilution Factor: 50

Injection Volume: 1(uL)

Level: (low/med) Low

% Moisture: 8.7

GPC Cleanup: (Y/N) N

Analysis Batch No.: 306240

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
51-28-5	2,4-Dinitrophenol	ND		41000	8100
100-02-7	4-Nitrophenol	ND		61000	15000
132-64-9	Dibenzofuran	ND		6100	240
121-14-2	2,4-Dinitrotoluene	ND		8100	1700
84-66-2	Diethyl phthalate	ND		61000	3100
7005-72-3	4-Chlorophenyl phenyl ether	ND		8100	260
86-73-7	Fluorene	ND		1000	200
100-01-6	4-Nitroaniline	ND		6100	2000
534-52-1	4,6-Dinitro-2-methylphenol	ND		41000	4100
86-30-6	N-Nitrosodiphenylamine	ND		2400	320
101-55-3	4-Bromophenyl phenyl ether	ND		8100	370
118-74-1	Hexachlorobenzene	ND		2000	610
87-86-5	Pentachlorophenol	ND		18000	5300
85-01-8	Phenanthrene	ND		2400	490
120-12-7	Anthracene	ND		1000	200
84-74-2	Di-n-butyl phthalate	ND		20000	2300
206-44-0	Fluoranthene	240 J Q		1000	200
129-00-0	Pyrene	260 J Q		2400	260
85-68-7	Butyl benzyl phthalate	2100 J Q		8100	2100
91-94-1	3,3'-Dichlorobenzidine	ND		16000	4100
56-55-3	Benzo[a]anthracene	ND		1000	200
218-01-9	Chrysene	ND		2400	530
117-81-7	Bis(2-ethylhexyl) phthalate	3400 J Q		24000	2900
117-84-0	Di-n-octyl phthalate	ND		6100	2300
50-32-8	Benzo[a]pyrene	ND		2400	530
193-39-5	Indeno[1,2,3-cd]pyrene	ND		1600	200
53-70-3	Dibenz(a,h)anthracene	ND		2000	490
191-24-2	Benzo[g,h,i]perylene	ND		2400	360
86-74-8	Carbazole	ND		6100	330
90-12-0	1-Methylnaphthalene	ND		1200	200
205-99-2	Benzo[b]fluoranthene	ND		1000	200
207-08-9	Benzo[k]fluoranthene	ND		2400	570
108-60-1	bis(chloroisopropyl) ether	ND		8100	570

*MW 82019*

FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87597-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070204 Lab Sample ID: 580-87597-2  
 Matrix: Solid Lab File ID: 0722A021.D  
 Analysis Method: 8270D Date Collected: 07/10/2019 09:28  
 Extract. Method: 3550B Date Extracted: 07/19/2019 10:03  
 Sample wt/vol: 13.517(g) Date Analyzed: 07/22/2019 18:10  
 Con. Extract Vol.: 10(mL) Dilution Factor: 50  
 Injection Volume: 1(uL) Level: (low/med) Low  
 % Moisture: 8.7 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 306240 Units: ug/Kg

CAS NO.	SURROGATE	%REC	Q	LIMITS
367-12-4	2-Fluorophenol (Surr)	97		60-125
4165-62-2	Phenol-d5 (Surr)	86		59-120
4165-60-0	Nitrobenzene-d5 (Surr)	102		62-120
321-60-8	2-Fluorobiphenyl	86		57-120
118-79-6	2,4,6-Tribromophenol (Surr)	325	x	52-125
1718-51-0	Terphenyl-d14 (Surr)	123	x	58-120

*MW 8/20/19*



## ecology and environment, inc.

Global Environmental Specialists

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### MEMORANDUM

DATE: January 8, 2020

TO: Seth Wing, START-IV Project Manager, E & E, Seattle, WA

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington *MW*

SUBJ: **Inorganic Data Quality Assurance Review, May Creek Removal Action Site, Renton, Washington**

REF: TO: TO-68HE0718F0470 PAN: 1004530.0470.001.01

The data quality assurance review of 2 soil samples collected from the May Creek Removal Action site in Renton, Washington, has been completed. Target Analyte List (TAL) metals analyses (EPA Methods 6010 and 7471) were performed by Test America, Inc., Tacoma, Washington. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Manual Process (S2B/4VM).

The samples were numbered: 19070201 19070202

#### Data Qualifications:

##### 1. Sample Holding Times: Acceptable.

The samples were maintained at  $< 6^{\circ}\text{C}$  (only applies to mercury). The samples were collected on July 9, 2019, and were analyzed by July 17, 2019, therefore meeting QC criteria of less than 6 months between collection, extraction, and analysis (28 days for mercury).

##### 2. Initial and Continuing Calibration: Acceptable.

A minimum of one calibration standard and a blank were analyzed at the beginning of the ICP analysis sequence and after every 10 samples. No results were greater than 110% of the highest calibration standard. All ICP recoveries were within the QC limits. All AA recoveries were within QC limits and the initial calibration correlation coefficient was  $> 0.995$ .

##### 3. Blanks: Satisfactory.

A preparation blank was analyzed for each 20 samples or per matrix per concentration level. Blanks were analyzed after each Initial or Continuing Calibration Verification. There were no detections in any blanks that potentially affected sample results except arsenic and cadmium associated with sample 19070201 and beryllium associated with sample 19070202; associated positive sample results less than the reporting limit were qualified as not detected (U).

##### 4. ICP Interference Check Sample: Acceptable.

An Interference Check Sample (ICS) was analyzed at the beginning of each sequence or at least twice every 8 hours, whichever was more frequent. All applicable ICS (solution AB) results were within QC limits of 80% - 120% recovery.

**5. ICP Serial Dilution: Satisfactory.**

A serial dilution analysis was performed per matrix per concentration or per sample delivery group, whichever was more frequent. All applicable serial dilution results were within QC limits except aluminum, barium, calcium, iron, magnesium, manganese, and vanadium, all with initial results less than the serial dilution results. Associated sample results were qualified as estimated quantities with a low bias (JL) for original sample results less than the serial dilution results.

**6. Matrix Spike Analysis: Satisfactory.**

A matrix spike analysis was performed per SDG or per matrix per concentration level, whichever was more frequent. Spike recoveries were within the QC limits except barium, calcium, magnesium, and chromium with high recoveries; positive samples results associated with high recoveries were qualified as estimated quantities with a high bias (JH).

**7. Duplicate Analysis: Satisfactory.**

A laboratory duplicate and spike duplicate analysis was performed per SDG or per matrix per concentration level, whichever was more frequent. All duplicate results were within QC limits except manganese; associated manganese results were qualified as estimated quantities with an unknown bias (JK).

**8. Laboratory Control Sample Analysis: Acceptable.**

A Laboratory Control Sample (LCS) was analyzed per SDG per matrix. All LCS results were within the established control limits.

**9. Overall Assessment of Data for Use**

This memo was updated in January 2020 to include silver results which were inadvertently omitted.

A total of 46 results were validated in this data memorandum. No sample results were qualified as estimated quantities (J) based on duplicate precision outliers, holding time outliers, incorrect sample containers, sample temperature outliers, or serial dilution outliers. No sample results were rejected (R). A total of 25 sample results were qualified as estimated quantities (J) based on spike accuracy outliers.

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the analytical method(s), the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, and/or the Office of Emergency and Remedial Response Publication "National Functional Guidelines for Superfund Inorganic Methods Data Review, January 2017". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

H - The sample result is biased high.

J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

- K - The bias of the sample is not known.
- L - The sample result is biased low.
- Q - Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.
- R - The data is rejected and unusable. The analyte may or may not be present in the sample.
- U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.



1A-IN  
INORGANIC ANALYSIS DATA SHEET  
METALS

Client Sample ID: 19070201

Lab Sample ID: 580-87600-1

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87600-1

SDG ID.:

Matrix: Solid

Date Sampled: 07/09/2019 16:25

Reporting Basis: DRY

Date Received: 07/11/2019 16:00

% Solids: 87.9

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7429-90-5	Aluminum	9800	JL 55	7.3	mg/Kg			1	6010D
7440-36-0	Antimony	0.27	2.2	0.19	mg/Kg	J Q		1	6010D
7440-38-2	Arsenic	2.0	2.2 U	0.18	mg/Kg	J K		1	6010D
7440-39-3	Barium	38	JK 0.37	0.058	mg/Kg		F1 B	1	6010D
7440-41-7	Beryllium	0.13	0.74	0.011	mg/Kg	J Q		1	6010D
7440-43-9	Cadmium	0.059	0.74 U	0.036	mg/Kg	J K		1	6010D
7440-70-2	Calcium	2900	JK 41	7.4	mg/Kg		F1	1	6010D
7440-47-3	Chromium	23	JH 0.96	0.16	mg/Kg		F1	1	6010D
7440-48-4	Cobalt	4.5	0.74	0.018	mg/Kg			1	6010D
7440-50-8	Copper	12	1.8	0.30	mg/Kg			1	6010D
7439-89-6	Iron	15000	JL 48	11	mg/Kg			1	6010D
7439-92-1	Lead	1.6	1.1	0.16	mg/Kg			1	6010D
7439-95-4	Magnesium	2800	JK 41	5.8	mg/Kg		F1	1	6010D
7439-96-5	Manganese	180	JK 1.5	0.28	mg/Kg		F2	1	6010D
7440-02-0	Nickel	15	0.74	0.076	mg/Kg			1	6010D
7440-09-7	Potassium	300	120	5.0	mg/Kg		F1	1	6010D
7782-49-2	Selenium	ND	3.7 U	0.29	mg/Kg			1	6010D
7440-22-4	Silver	ND	1.8 U	0.41	mg/Kg			1	6010D
7440-23-5	Sodium	160	74	14	mg/Kg			1	6010D
7440-28-0	Thallium	ND	3.7 U	0.31	mg/Kg			1	6010D
7440-62-2	Vanadium	29	JL 1.5	0.19	mg/Kg			1	6010D
7440-66-6	Zinc	21	3.0	0.71	mg/Kg			1	6010D
7439-97-6	Mercury	0.016	0.024	0.0072	mg/Kg	J Q		1	7471A

JAW 1-8-2020

1A-IN  
INORGANIC ANALYSIS DATA SHEET  
METALS

Client Sample ID: 19070202

Lab Sample ID: 580-87600-2

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87600-1

SDG ID.:

Matrix: Solid

Date Sampled: 07/09/2019 17:00

Reporting Basis: DRY

Date Received: 07/11/2019 16:00

% Solids: 37.8

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7429-90-5	Aluminum	26000	JL 120	16	mg/Kg			1	6010D
7440-36-0	Antimony	0.92	4.9	0.43	mg/Kg	JQ		1	6010D
7440-38-2	Arsenic	9.0	4.9	0.41	mg/Kg			1	6010D
7440-39-3	Barium	110	JK 0.82	0.13	mg/Kg		PM	1	6010D
7440-41-7	Beryllium	0.36	1.6	U 0.025	mg/Kg	JQ		1	6010D
7440-43-9	Cadmium	0.38	1.6	0.080	mg/Kg	JQ		1	6010D
7440-70-2	Calcium	7700	JK 90	16	mg/Kg			1	6010D
7440-47-3	Chromium	60	JH 2.1	0.35	mg/Kg			1	6010D
7440-48-4	Cobalt	21	1.6	0.041	mg/Kg			1	6010D
7440-50-8	Copper	66	4.1	0.65	mg/Kg			1	6010D
7439-89-6	Iron	37000	JL 110	25	mg/Kg			1	6010D
7439-92-1	Lead	4.9	2.5	0.36	mg/Kg			1	6010D
7439-95-4	Magnesium	10000	JK 90	13	mg/Kg			1	6010D
7439-96-5	Manganese	900	JK 3.3	0.63	mg/Kg			1	6010D
7440-02-0	Nickel	60	1.6	0.17	mg/Kg			1	6010D
7440-09-7	Potassium	1600	270	11	mg/Kg		PM	1	6010D
7782-49-2	Selenium	ND	8.2	U 0.65	mg/Kg			1	6010D
7440-22-4	Silver	ND	4.1	U 0.92	mg/Kg			1	6010D
7440-23-5	Sodium	530	160	31	mg/Kg			1	6010D
7440-28-0	Thallium	ND	8.2	U 0.69	mg/Kg			1	6010D
7440-62-2	Vanadium	75	JK 3.3	0.43	mg/Kg			1	6010D
7440-66-6	Zinc	68	6.5	1.6	mg/Kg			1	6010D
7439-97-6	Mercury	0.017	0.052	0.015	mg/Kg	JQ		1	7471A

mw 1-8-2020





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### MEMORANDUM

DATE: August 14, 2019

TO: Steve Hall, START-IV Project Manager, E & E, Seattle, Washington

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington *MW*

SUBJ: Organic Data Quality Assurance Review, May Creek Removal Action Site, Renton, Washington

REF: TO: TO-68HEC718F0470 PAN: 1004530.0470.001.01

The data quality assurance review of 3 soil samples collected from the May Creek Removal Action site located in Renton, Washington, has been completed. Analysis for Extended Gasoline Range Total Petroleum Hydrocarbons (Ecology Method NWTPH-Gx) analyses was performed by Test America, Inc., Tacoma, Washington. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Manual Process (S2B/4VM).

The samples were numbered: 19070201 19070202 19070601

#### Data Qualifications:

##### 1. Sample Holding Times: Satisfactory.

The samples were maintained and received within the QC limits of  $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ . The samples were collected on July 9, 2019, were received at the laboratory within 48 hours of collection, and were analyzed by July 25, 2019, therefore meeting QC criteria of less than 14 days between collection and analysis for soil samples except sample 19070601; associated sample results were qualified as estimated quantities with a low bias (JL or UJL).

##### 2. Initial Calibration: Acceptable.

Calculations were verified as correct. All relative percent differences (RPDs) were less than or equal to the laboratory control limits.

##### 3. Continuing Calibration: Acceptable.

Calculations were verified as correct. All percent differences were less than or equal to the laboratory control limits.

##### 4. Blanks: Acceptable.

A method blank was analyzed at the required frequency of every 12 hours for each matrix, preparation technique, and analysis system. Gasoline-range TPHs were not detected in the method blank or in the trip blank.

**5. System Monitoring Compounds (SMC): Acceptable.**

All recoveries of the SMCs were greater than 10% and within QC limits.

**6. Matrix Spike (MS) Analyses: Acceptable.**

MS results were within laboratory QC limits.

**7. Blank Spikes (BS) and BS Duplicate (BSD) Analyses: Acceptable.**

BS and BSD results were within laboratory QC limits.

**8. Duplicates: Acceptable.**

All spike duplicate results were within laboratory QC limits.

**9. Quantitation and Quantitation Limits: Acceptable.**

Sample quantitation and sample quantitation limits were correctly calculated.

**10. Laboratory Contact: Not Required.**

No laboratory contact was required.

**11. Overall Assessment of Data for Use**

The sample weights for sample 19070201 and 19070202 were above the method specified sample weights; associated sample results were qualified as estimated quantities (JK or UJK).

A total of 3 results were validated in this data memorandum. No sample results were qualified as estimated quantities (J) based on duplicate precision outliers, spike accuracy outliers, holding time outliers, incorrect sample containers, or sample temperature outliers. No sample results were rejected (R).

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the analytical method(s), the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, and/or the Office of Emergency and Remedial Response Publication "National Functional Guidelines for Superfund Organic Methods Data Review, January 2017". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

**Data Qualifiers and Definitions**

H - The sample result is biased high.

J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

- K - The bias of the sample is not known.
- L - The sample result is biased low.
- Q - Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.
- R - The data is rejected and unusable. The analyte may or may not be present in the sample.
- U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.

FORM I  
GC VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87600-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070201 Lab Sample ID: 580-87600-1  
 Matrix: Solid Lab File ID: 07171908.D  
 Analysis Method: NWTPH-Gx Date Collected: 07/09/2019 16:25  
 Sample wt/vol: 14.182(g) Date Analyzed: 07/17/2019 12:12  
 Soil Aliquot Vol: 1.075 (mL) Dilution Factor: 1  
 Soil Extract Vol.: 10 (mL) GC Column: RTX-VRX ID: 0.45 (mm)  
 % Moisture: 12.1 Level: (low/med) Medium  
 Analysis Batch No.: 305882 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00228	Gasoline	<del>ND</del> <i>m</i>		4.7	<i>UJR</i> 2.2

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	100		50-150
98-08-8	Trifluorotoluene (Surr)			

*MW 8/4/19*

FORM I  
GC VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87600-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070202 Lab Sample ID: 580-87600-2  
 Matrix: Solid Lab File ID: 07161918.D  
 Analysis Method: NWTPH-Gx Date Collected: 07/09/2019 17:00  
 Sample wt/vol: 12.997(g) Date Analyzed: 07/16/2019 18:42  
 Soil Aliquot Vol: 1.075 (mL) Dilution Factor: 1  
 Soil Extract Vol.: 10 (mL) GC Column: RTX-VRX ID: 0.45 (mm)  
 % Moisture: 62.2 Level: (low/med) Medium  
 Analysis Batch No.: 305786 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00228	Gasoline	<del>MD</del>		18	8.5

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	99		50-150

*Handwritten signature: MW 8-14-19*

FORM I  
GC VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87600-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070601 Lab Sample ID: 580-87600-3  
 Matrix: Solid Lab File ID: 07251921.D  
 Analysis Method: NWTPH-Gx Date Collected: 07/09/2019 17:40  
 Sample wt/vol: 10(g) Date Analyzed: 07/25/2019 19:52  
 Soil Aliquot Vol: 1.075 (mL) Dilution Factor: 1  
 Soil Extract Vol.: 10(mL) GC Column: RTX-VRX ID: 0.45 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Medium  
 Analysis Batch No.: 306688 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00228	Gasoline	<i>MD</i> <i>u</i>	<i>u</i>	5.0	<i>DSL</i> 2.3

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	103		50-150

*MW 8/14/19*



**MEMORANDUM**

DATE: August 14, 2019

TO: Seth Wing, START-IV Project Manager, E & E, Seattle, WA

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington *MW*

SUBJ: **Organic Data Quality Assurance Review, May Creek Removal Action Site, Renton, Washington**

REF: TO: TO-68HE0718F0470      PAN: 1004530.0470.001.01

The data quality assurance review of 3 soil samples collected from the May Creek Removal Action site in Renton, Washington, has been completed. Volatile Organic Compound (VOC) analysis (EPA Method 8260) was performed by Test America, Inc., Tacoma, Washington. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Manual Process (S2B/4VM).

The samples were numbered:    19070201      19070202      19070601

**Data Qualifications:**

**1. Sample Holding Times: Acceptable.**

The samples were maintained within the QC limits of  $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ . The samples were collected on July 9, 2019, and were analyzed by July 23, 2019, therefore meeting QC criteria of less than 14 days between collection and analysis for soil samples.

**2. Tuning: Acceptable.**

Tuning was performed at the beginning of each 12-hour analysis sequence. All results were within QC limits.

**3. Initial Calibration: Acceptable.**

All average Relative Response Factors (RRFs) were within the QC limits. All Relative Standard Deviations (RSDs) and/or correlation coefficients were within the QC limits.

**4. Continuing Calibration: Satisfactory.**

All RRFs were within the QC limits. Applicable percent differences were within QC limits except several low outliers; positive results and sample quantitation limits associated with low recoveries were qualified as estimated quantities with a low bias (JL or UJL).

**5. Blanks: Acceptable.**

A method blank was analyzed for each 20 sample batch per matrix. There were no detections in any method blank. There were no detections in the trip blank.

**6. System Monitoring Compounds (SMCs): Acceptable.**

All SMC recoveries were within QC limits.

**7. Blank Spike (BS), Matrix Spike (MS), MS Duplicate (MSD) Analysis: Acceptable.**

Spike analyses were performed per SDG or per matrix per concentration level, whichever was more frequent. All recoveries were within QC limits.

**8. Spike Duplicate Analysis: Acceptable.**

Spike duplicate analyses were performed per SDG or per matrix per concentration level, whichever was more frequent. All spike duplicate results were within QC limits.

**9. Internal Standards: Acceptable.**

All internal standards were within  $\pm 30$  seconds of the continuing calibration internal standard retention times. All area counts were within 50 % to 200 % of the continuing calibration area counts.

**10. Overall Assessment of Data for Use**

The sample weights for samples 19070201 and 19070202 were above the method specified limit; associated sample results were qualified as estimated quantities with an unknown bias (JK or UJK).

A total of 370 results were validated in this data memorandum. No sample results were qualified as estimated quantities (J) based on duplicate precision outliers, spike accuracy outliers, holding time outliers, incorrect sample containers, or sample temperature outliers. No sample results were rejected (R).

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the analytical method(s), the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, and/or the Office of Emergency and Remedial Response Publication "National Functional Guidelines for Superfund Organic Methods Data Review, January 2017". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

H - The sample result is biased high.

J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

K - The bias of the sample is not known.

L - The sample result is biased low.

N - The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification".

NJ - The analyte has been "tentatively identified" or "presumptively" as present and the associated numerical value is the estimated concentration in the sample.



- Q - Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.
- R - The data is rejected and unusable. The analyte may or may not be present in the sample.
- U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87600-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070201 Lab Sample ID: 580-87600-1  
 Matrix: Solid Lab File ID: 072319\_0022.D  
 Analysis Method: 8260C Date Collected: 07/09/2019 16:25  
 Sample wt/vol: 6.579(g) Date Analyzed: 07/23/2019 18:46  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: DB-VRX ID: 0.25 (mm)  
 % Moisture: 12.1 Level: (low/med) Low  
 Analysis Batch No.: 306370 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-71-8	Dichlorodifluoromethane	ND		1.7	0.42
74-87-3	Chloromethane	ND		4.3	0.80
75-01-4	Vinyl chloride	ND		1.7	0.26
74-83-9	Bromomethane	ND		0.86	0.18
75-00-3	Chloroethane	ND		8.6	1.4
75-69-4	Trichlorofluoromethane	ND		1.7	0.26
75-35-4	1,1-Dichloroethene	ND		4.3	0.95
75-09-2	Methylene Chloride	12	J Q	35	8.6
156-60-5	trans-1,2-Dichloroethene	ND		1.7	0.35
75-34-3	1,1-Dichloroethane	ND		0.86	0.16
594-20-7	2,2-Dichloropropane	ND		4.3	0.78
156-59-2	cis-1,2-Dichloroethene	ND		2.6	0.52
74-97-5	Bromochloromethane	ND		1.7	0.22
67-66-3	Chloroform	ND		1.7	0.26
71-55-6	1,1,1-Trichloroethane	ND		1.7	0.26
56-23-5	Carbon tetrachloride	ND		1.7	0.26
563-58-6	1,1-Dichloropropene	ND		1.7	0.26
71-43-2	Benzene	ND		1.7	0.34
107-06-2	1,2-Dichloroethane	ND		0.86	0.17
79-01-6	Trichloroethene	ND		1.7	0.26
78-87-5	1,2-Dichloropropane	ND		1.7	0.35
74-95-3	Dibromomethane	ND		0.86	0.15
75-27-4	Bromodichloromethane	ND		0.86	0.16
10061-01-5	cis-1,3-Dichloropropene	ND		0.86	0.17
108-88-3	Toluene	ND		8.6	1.1
10061-02-6	trans-1,3-Dichloropropene	ND		8.6	1.2
79-00-5	1,1,2-Trichloroethane	ND		1.7	0.22
127-18-4	Tetrachloroethene	ND		1.7	0.35
142-28-9	1,3-Dichloropropane	ND		1.7	0.20
124-48-1	Dibromochloromethane	ND		1.3	0.23
106-93-4	1,2-Dibromoethane	ND		0.86	0.17
108-90-7	Chlorobenzene	ND		1.7	0.22
100-41-4	Ethylbenzene	ND		1.7	0.35
630-20-6	1,1,1,2-Tetrachloroethane	ND		2.6	0.51
79-34-5	1,1,2,2-Tetrachloroethane	ND		3.5	0.78
179601-23-1	m-Xylene & p-Xylene	ND		8.6	1.5

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87600-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070201 Lab Sample ID: 580-87600-1  
 Matrix: Solid Lab File ID: 072319\_0022.D  
 Analysis Method: 8260C Date Collected: 07/09/2019 16:25  
 Sample wt/vol: 6.579(g) Date Analyzed: 07/23/2019 18:46  
 Soil Aliquot Vol.: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: DB-VRX ID: 0.25 (mm)  
 % Moisture: 12.1 Level: (low/med) Low  
 Analysis Batch No.: 306370 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
95-47-6	o-Xylene	ND		4.3	0.80
100-42-5	Styrene	ND		2.6	0.64
75-25-2	Bromoform	ND		4.3	0.73
98-82-8	Isopropylbenzene	ND		1.7	0.40
108-86-1	Bromobenzene	ND		8.6	0.86
103-65-1	N-Propylbenzene	ND		4.3	0.66
96-18-4	1,2,3-Trichloropropane	ND		4.3	0.86
95-49-8	2-Chlorotoluene	ND		4.3	0.80
108-67-8	1,3,5-Trimethylbenzene	ND		4.3	0.70
106-43-4	4-Chlorotoluene	ND		4.3	0.86
98-06-6	t-Butylbenzene	ND		2.6	0.57
95-63-6	1,2,4-Trimethylbenzene	ND		4.3	1.0
135-98-8	sec-Butylbenzene	ND		2.6	0.58
541-73-1	1,3-Dichlorobenzene	ND		4.3	0.95
99-87-6	4-Isopropyltoluene	ND		1.7	0.35
106-46-7	1,4-Dichlorobenzene	ND		4.3	0.85
104-51-8	n-Butylbenzene	ND		2.6	0.54
95-50-1	1,2-Dichlorobenzene	ND		8.6	1.1
96-12-8	1,2-Dibromo-3-Chloropropane	ND		8.6	1.4
120-82-1	1,2,4-Trichlorobenzene	ND		1.7	0.36
87-61-6	1,2,3-Trichlorobenzene	ND		2.6	0.52
87-68-3	Hexachlorobutadiene	ND		2.6	0.52
91-20-3	Naphthalene	ND		8.6	1.6
1634-04-4	Methyl tert-butyl ether	ND		1.7	0.26

CAS NO.	SURROGATE	%REC	Q	LIMITS
2037-26-5	Toluene-d8 (Surr)	98		80-120
460-00-4	4-Bromofluorobenzene (Surr)	105		80-120
1868-53-7	Dibromofluoromethane (Surr)	100		80-120
98-08-8	Trifluorotoluene (Surr)	97		80-120
17060-07-0	1,2-Dichloroethane-d4 (Surr)	110		80-121

*mw 8-14-19*

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87600-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070202

Lab Sample ID: 580-87600-2

Matrix: Solid

Lab File ID: 072319\_0025.D

Analysis Method: 8260C

Date Collected: 07/09/2019 17:00

Sample wt/vol: 7.535(g)

Date Analyzed: 07/23/2019 20:00

Soil Aliquot Vol: \_\_\_\_\_

Dilution Factor: 1

Soil Extract Vol.: \_\_\_\_\_

GC Column: DB-VRX ID: 0.25 (mm)

% Moisture: 62.2

Level: (low/med) Low

Analysis Batch No.: 306370

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-71-8	Dichlorodifluoromethane	ND		3.5	0.86
74-87-3	Chloromethane	ND		8.8	1.6
75-01-4	Vinyl chloride	ND		3.5	0.53
74-83-9	Bromomethane	ND		1.8	0.37
75-00-3	Chloroethane	ND		18	2.8
75-69-4	Trichlorofluoromethane	ND		3.5	0.53
75-35-4	1,1-Dichloroethene	ND		8.8	1.9
75-09-2	Methylene Chloride	18	J Q	70	17
156-60-5	trans-1,2-Dichloroethene	ND		3.5	0.70
75-34-3	1,1-Dichloroethane	ND		1.8	0.33
594-20-7	2,2-Dichloropropane	ND		8.8	1.6
156-59-2	cis-1,2-Dichloroethene	ND		5.3	1.1
74-97-5	Bromochloromethane	ND		3.5	0.44
67-66-3	Chloroform	ND		3.5	0.53
71-55-6	1,1,1-Trichloroethane	ND		3.5	0.53
56-23-5	Carbon tetrachloride	ND		3.5	0.53
563-58-6	1,1-Dichloropropene	ND		3.5	0.53
71-43-2	Benzene	ND		3.5	0.68
107-06-2	1,2-Dichloroethane	ND		1.8	0.35
79-01-6	Trichloroethene	ND		3.5	0.53
78-87-5	1,2-Dichloropropane	ND		3.5	0.70
74-95-3	Dibromomethane	ND		1.8	0.30
75-27-4	Bromodichloromethane	ND		1.8	0.32
10061-01-5	cis-1,3-Dichloropropene	ND		1.8	0.35
108-88-3	Toluene	ND		18	2.3
10061-02-6	trans-1,3-Dichloropropene	ND		18	2.5
79-00-5	1,1,2-Trichloroethane	ND		3.5	0.44
127-18-4	Tetrachloroethene	ND		3.5	0.70
142-28-9	1,3-Dichloropropane	ND		3.5	0.40
124-48-1	Dibromochloromethane	ND		2.6	0.47
106-93-4	1,2-Dibromoethane	ND		1.8	0.35
108-90-7	Chlorobenzene	ND		3.5	0.44
100-41-4	Ethylbenzene	ND		3.5	0.72
630-20-6	1,1,1,2-Tetrachloroethane	ND		5.3	1.0
79-34-5	1,1,2,2-Tetrachloroethane	ND		7.0	1.6
179601-23-1	m-Xylene & p-Xylene	ND		18	3.0

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87600-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070202 Lab Sample ID: 580-87600-2  
 Matrix: Solid Lab File ID: 072319\_0025.D  
 Analysis Method: 8260C Date Collected: 07/09/2019 17:00  
 Sample wt/vol: 7.535(g) Date Analyzed: 07/23/2019 20:00  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: DB-VRX ID: 0.25 (mm)  
 % Moisture: 62.2 Level: (low/med) Low  
 Analysis Batch No.: 306370 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
95-47-6	o-Xylene	ND		8.8	1.6
100-42-5	Styrene	ND		5.3	1.3
75-25-2	Bromoform	ND		8.8	1.5
98-82-8	Isopropylbenzene	ND		3.5	0.81
108-86-1	Bromobenzene	ND		18	1.8
103-65-1	N-Propylbenzene	ND		8.8	1.3
96-18-4	1,2,3-Trichloropropane	ND		8.8	1.8
95-49-8	2-Chlorotoluene	ND		8.8	1.6
108-67-8	1,3,5-Trimethylbenzene	ND		8.8	1.4
106-43-4	4-Chlorotoluene	ND		8.8	1.8
98-06-6	t-Butylbenzene	ND		5.3	1.2
95-63-6	1,2,4-Trimethylbenzene	ND		8.8	2.1
135-98-8	sec-Butylbenzene	ND		5.3	1.2
541-73-1	1,3-Dichlorobenzene	ND		8.8	1.9
99-87-6	4-Isopropyltoluene	ND		3.5	0.70
106-46-7	1,4-Dichlorobenzene	ND		8.8	1.7
104-51-8	n-Butylbenzene	ND		5.3	1.1
95-50-1	1,2-Dichlorobenzene	ND		18	2.3
96-12-8	1,2-Dibromo-3-Chloropropane	ND		18	2.8
120-82-1	1,2,4-Trichlorobenzene	ND		3.5	0.74
87-61-6	1,2,3-Trichlorobenzene	ND		5.3	1.1
87-68-3	Hexachlorobutadiene	ND		5.3	1.1
91-20-3	Naphthalene	ND		18	3.2
1634-04-4	Methyl tert-butyl ether	ND		3.5	0.53

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CAS NO.	SURROGATE	%REC	Q	LIMITS
2037-26-5	Toluene-d8 (Surr)	99		80-120
460-00-4	4-Bromofluorobenzene (Surr)	103		80-120
1868-53-7	Dibromofluoromethane (Surr)	103		80-120
98-08-8	Trifluorotoluene (Surr)	97		80-120
17060-07-0	1,2-Dichloroethane-d4 (Surr)	109		80-121

mu 8-14-19

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87600-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070601 Lab Sample ID: 580-87600-3  
 Matrix: Solid Lab File ID: 072319\_0026.D  
 Analysis Method: 8260C Date Collected: 07/09/2019 17:40  
 Sample wt/vol: 5(g) Date Analyzed: 07/23/2019 20:25  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: DB-VRX ID: 0.25 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 306370 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-71-8	Dichlorodifluoromethane	ND		2.0	0.49
74-87-3	Chloromethane	ND		5.0	0.93
75-01-4	Vinyl chloride	ND		2.0	0.30
74-83-9	Bromomethane	ND		1.0	0.21
75-00-3	Chloroethane	ND		10	1.6
75-69-4	Trichlorofluoromethane	ND		2.0	0.30
75-35-4	1,1-Dichloroethene	ND		5.0	1.1
75-09-2	Methylene Chloride	ND		40	9.9
156-60-5	trans-1,2-Dichloroethene	ND		2.0	0.40
75-34-3	1,1-Dichloroethane	ND		1.0	0.19
594-20-7	2,2-Dichloropropane	ND		5.0	0.90
156-59-2	cis-1,2-Dichloroethene	ND		3.0	0.60
74-97-5	Bromochloromethane	ND		2.0	0.25
67-66-3	Chloroform	ND		2.0	0.30
71-55-6	1,1,1-Trichloroethane	ND		2.0	0.30
56-23-5	Carbon tetrachloride	ND		2.0	0.30
563-58-6	1,1-Dichloropropene	ND		2.0	0.30
71-43-2	Benzene	ND		2.0	0.39
107-06-2	1,2-Dichloroethane	ND		1.0	0.20
79-01-6	Trichloroethene	ND		2.0	0.30
78-87-5	1,2-Dichloropropane	ND		2.0	0.40
74-95-3	Dibromomethane	ND		1.0	0.17
75-27-4	Bromodichloromethane	ND		1.0	0.18
10061-01-5	cis-1,3-Dichloropropene	ND		1.0	0.20
108-88-3	Toluene	ND		10	1.3
10061-02-6	trans-1,3-Dichloropropene	ND		10	1.4
79-00-5	1,1,2-Trichloroethane	ND		2.0	0.25
127-18-4	Tetrachloroethene	ND		2.0	0.40
142-28-9	1,3-Dichloropropane	ND		2.0	0.23
124-48-1	Dibromochloromethane	ND		1.5	0.27
106-93-4	1,2-Dibromoethane	ND		1.0	0.20
108-90-7	Chlorobenzene	ND		2.0	0.25
100-41-4	Ethylbenzene	ND		2.0	0.41
630-20-6	1,1,1,2-Tetrachloroethane	ND		3.0	0.59
79-34-5	1,1,2,2-Tetrachloroethane	ND		4.0	0.90
179601-23-1	m-Xylene & p-Xylene	ND		10	1.7

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87600-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070601 Lab Sample ID: 580-87600-3  
 Matrix: Solid Lab File ID: 072319\_0026.D  
 Analysis Method: 8260C Date Collected: 07/09/2019 17:40  
 Sample wt/vol: 5(g) Date Analyzed: 07/23/2019 20:25  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: DB-VRX ID: 0.25 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 306370 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
95-47-6	o-Xylene	ND		5.0	0.92
100-42-5	Styrene	ND		3.0	0.74
75-25-2	Bromoform	ND		5.0	0.84
98-82-8	Isopropylbenzene	ND		2.0	0.46
108-86-1	Bromobenzene	ND		10	1.0
103-65-1	N-Propylbenzene	ND		5.0	0.76
96-18-4	1,2,3-Trichloropropane	ND		5.0	1.0
95-49-8	2-Chlorotoluene	ND		5.0	0.93
108-67-8	1,3,5-Trimethylbenzene	ND		5.0	0.81
106-43-4	4-Chlorotoluene	ND		5.0	1.0
98-06-6	t-Butylbenzene	ND		3.0	0.66
95-63-6	1,2,4-Trimethylbenzene	ND		5.0	1.2
135-98-8	sec-Butylbenzene	ND		3.0	0.67
541-73-1	1,3-Dichlorobenzene	ND		5.0	1.1
99-87-6	4-Isopropyltoluene	ND		2.0	0.40
106-46-7	1,4-Dichlorobenzene	ND		5.0	0.98
104-51-8	n-Butylbenzene	ND		3.0	0.63
95-50-1	1,2-Dichlorobenzene	ND		10	1.3
96-12-8	1,2-Dibromo-3-Chloropropane	ND		10	1.6
120-82-1	1,2,4-Trichlorobenzene	ND		2.0	0.42
87-61-6	1,2,3-Trichlorobenzene	ND		3.0	0.60
87-68-3	Hexachlorobutadiene	ND		3.0	0.60
91-20-3	Naphthalene	ND		10	1.8
1634-04-4	Methyl tert-butyl ether	ND		2.0	0.30

*MW*

CAS NO.	SURROGATE	%REC	Q	LIMITS
2037-26-5	Toluene-d8 (Surr)	99		80-120
460-00-4	4-Bromofluorobenzene (Surr)	103		80-120
1868-53-7	Dibromofluoromethane (Surr)	102		80-120
98-08-8	Trifluorotoluene (Surr)	95		80-120
17060-07-0	1,2-Dichloroethane-d4 (Surr)	117		80-121

*MW 8/4/19*



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### MEMORANDUM

DATE: August 14, 2019

TO: Seth Wing, START-IV Project Manager, E & E, Seattle, WA

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington *MW*

SUBJ: **Organic Data Quality Assurance Review, May Creek Removal Action Site, Renton, Washington**

REF: TO: TO-68HE0718F0470 PAN: 1004530.0470.001.01

The data quality assurance review of 2 soil samples collected from the May Creek Removal Action site in Renton, Washington, has been completed. Semivolatile Organic Compound (SVOC) analysis (EPA Method 8270) was performed by Test America, Inc., Tacoma, Washington. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Manual Process (S2B/4VM).

The samples were numbered: 19070201 19070202

#### Data Qualifications:

1. **Sample Holding Times: Acceptable.**

The samples were maintained and received within the QC limits of 0°C to 6°C. The samples were collected on July 9, 2019, were extracted on July 19, 2019, and were analyzed by July 22, 2019, therefore meeting holding time criteria of less than 14 days between collection and extraction and less than 40 days between extraction and analysis.

2. **Tuning: Acceptable.**

Tuning was performed at the beginning of each 12-hour analysis sequence. All results were within QC limits.

3. **Initial Calibration: Satisfactory.**

All average Relative Response Factors (RRFs) were within the QC limits except n-nitroso-di-n-propyl amine. All Relative Standard Deviations (RSDs) were within the QC limits.

4. **Continuing Calibration: Satisfactory.**

All RRFs were within the QC limits except n-nitroso-di-n-propyl amine; no additional actions were taken. All % differences were within the QC limits.

5. **Blanks: Satisfactory.**

A method blank was analyzed for each 20 sample batch per matrix. There were no detections in any method blank except butyl benzyl phthalate (112 ug/kg). Associated positive sample results less than the reporting limit were qualified as not detected (U).



**6. System Monitoring Compounds (SMCs): Satisfactory.**

All SMC recoveries were within QC limits except a high terphenyl-d14 recovery in sample 19070201 (no actions were taken as matrix interference is suspected) and a low 2,4,6-tribromophenol recovery in the method blank (no actions were taken as all other SMCs were within QC limits).

**7. Matrix Spike (MS)/MS Duplicate (MSD) Analysis: Satisfactory.**

MS and MSD analyses were performed per SDG or per matrix per concentration level, whichever was more frequent. All recoveries were within QC limits except low 4-chloroaniline and hexachloro-cyclopentadiene recoveries and high 3,3'-dichlorobenzidine, benzoic acid, and carbazole recoveries; no qualifiers were applied based on these outliers alone.

**8. Blank Spike (BS)/BS Duplicate (BSD) Analysis: Satisfactory.**

BS and BSD analyses were performed per SDG or per matrix per concentration level, whichever was more frequent. All recoveries were within QC limits except some high outliers; no actions were taken as none of the high recovery outliers were detected in the samples.

**9. Duplicate Analysis: Satisfactory.**

Spike duplicate analyses were performed per SDG or per matrix per concentration level, whichever was more frequent. All spike duplicate results were within QC limits except 4-nitroaniline; no qualifiers were applied based on the duplicate outliers alone.

**10. Internal Standards: Acceptable.**

All internal standards (IS) were within  $\pm 30$  seconds of the continuing calibration IS retention times. All area counts were within 50 % to 200 % of the continuing calibration area counts.

**11. Overall Assessment of Data for Use**

A total of 134 results were validated in this data memorandum. No sample results were qualified as estimated quantities (J) based on duplicate precision outliers, spike accuracy outliers, holding time outliers, incorrect sample containers, or sample temperature outliers. The following analyte was detected in the method blank: butyl benzyl phthalate. No sample results were rejected (R).

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the analytical method(s), the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, and/or the Office of Emergency and Remedial Response Publication "National Functional Guidelines for Superfund Organic Methods Data Review, January 2017". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

H - The sample result is biased high.

J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

- K - The bias of the sample is not known.
- L - The sample result is biased low.
- N - The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification".
- NJ - The analyte has been "tentatively identified" or "presumptively" as present and the associated numerical value is the estimated concentration in the sample.
- Q - Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.
- R - The data is rejected and unusable. The analyte may or may not be present in the sample.
- U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.

FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87600-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070201

Lab Sample ID: 580-87600-1

Matrix: Solid

Lab File ID: 0722A016.D

Analysis Method: 8270D

Date Collected: 07/09/2019 16:25

Extract. Method: 3550B

Date Extracted: 07/19/2019 10:03

Sample wt/vol: 10.056(g)

Date Analyzed: 07/22/2019 16:10

Con. Extract Vol.: 10(mL)

Dilution Factor: 1

Injection Volume: 1(uL)

Level: (low/med) Low

% Moisture: 12.1

GPC Cleanup: (Y/N) N

Analysis Batch No.: 306240

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
108-95-2	Phenol	ND		170	26
111-44-4	Bis(2-chloroethyl)ether	ND		110	8.7
95-57-8	2-Chlorophenol	ND		230	15
541-73-1	1,3-Dichlorobenzene	ND		57	5.4
106-46-7	1,4-Dichlorobenzene	ND		57	9.4
100-51-6	Benzyl alcohol	ND		570	87
95-50-1	1,2-Dichlorobenzene	ND		57	14
95-48-7	2-Methylphenol	ND		170	11
15831-10-4	3 & 4 Methylphenol	ND		230	17
621-64-7	N-Nitrosodi-n-propylamine	ND		230	25
67-72-1	Hexachloroethane	ND		170	10
98-95-3	Nitrobenzene	ND		230	23
78-59-1	Isophorone	ND		170	8.4
88-75-5	2-Nitrophenol	ND		230	24
105-67-9	2,4-Dimethylphenol	ND		110	17
65-85-0	Benzoic acid	ND	F1	2300	660
111-91-1	Bis(2-chloroethoxy)methane	ND		230	20
120-83-2	2,4-Dichlorophenol	ND		110	17
120-82-1	1,2,4-Trichlorobenzene	ND		57	6.8
91-20-3	Naphthalene	ND		28	5.7
106-47-8	4-Chloroaniline	ND	F1	1700	450
87-68-3	Hexachlorobutadiene	ND		57	17
59-50-7	4-Chloro-3-methylphenol	ND		170	37
91-57-6	2-Methylnaphthalene	ND		57	10
77-47-4	Hexachlorocyclopentadiene	ND	F1	110	23
88-06-2	2,4,6-Trichlorophenol	ND		170	41
95-95-4	2,4,5-Trichlorophenol	ND		230	51
91-58-7	2-Chloronaphthalene	ND		28	5.7
88-74-4	2-Nitroaniline	ND		110	17
131-11-3	Dimethyl phthalate	ND		170	15
208-96-8	Acenaphthylene	ND		28	5.7
606-20-2	2,6-Dinitrotoluene	ND		170	38
99-09-2	3-Nitroaniline	ND		230	45
83-32-9	Acenaphthene	ND		28	5.7

FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87600-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070201

Lab Sample ID: 580-87600-1

Matrix: Solid

Lab File ID: 0722A016.D

Analysis Method: 8270D

Date Collected: 07/09/2019 16:25

Extract. Method: 3550B

Date Extracted: 07/19/2019 10:03

Sample wt/vol: 10.056(g)

Date Analyzed: 07/22/2019 16:10

Con. Extract Vol.: 10(mL)

Dilution Factor: 1

Injection Volume: 1(uL)

Level: (low/med) Low

% Moisture: 12.1

GPC Cleanup: (Y/N) N

Analysis Batch No.: 306240

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
51-28-5	2,4-Dinitrophenol	ND		1100	230
100-02-7	4-Nitrophenol	ND		1700	420
132-64-9	Dibenzofuran	ND		170	6.7
121-14-2	2,4-Dinitrotoluene	ND		230	49
84-66-2	Diethyl phthalate	ND		1700	86
7005-72-3	4-Chlorophenyl phenyl ether	ND		230	7.1
86-73-7	Fluorene	ND		28	5.7
100-01-6	4-Nitroaniline	ND	F2	170	57
534-52-1	4,6-Dinitro-2-methylphenol	ND		1100	110
86-30-6	N-Nitrosodiphenylamine	ND		68	9.1
101-55-3	4-Bromophenyl phenyl ether	ND		230	10
118-74-1	Hexachlorobenzene	ND		57	17
87-86-5	Pentachlorophenol	ND		510	150
85-01-8	Phenanthrene	ND		68	14
120-12-7	Anthracene	ND		28	5.7
84-74-2	Di-n-butyl phthalate	ND		570	64
206-44-0	Fluoranthene	ND		28	5.7
129-00-0	Pyrene	ND		68	7.2
85-68-7	Butyl benzyl phthalate	ND		230	58
91-94-1	3,3'-Dichlorobenzidine	ND	F1	450	110
56-55-3	Benzo[a]anthracene	ND		28	5.7
218-01-9	Chrysene	ND		68	15
117-81-7	Bis(2-ethylhexyl) phthalate	200	J Q	680	80
117-84-0	Di-n-octyl phthalate	ND		170	64
50-32-8	Benzo[a]pyrene	ND		68	15
193-39-5	Indeno[1,2,3-cd]pyrene	ND		45	5.7
53-70-3	Dibenz(a,h)anthracene	ND		57	14
191-24-2	Benzo[g,h,i]perylene	ND		68	10
86-74-8	Carbazole	ND	* F1	170	9.3
90-12-0	1-Methylnaphthalene	ND		34	5.7
205-99-2	Benzo[b]fluoranthene	ND		28	5.7
207-08-9	Benzo[k]fluoranthene	ND		68	16
108-60-1	bis(chloroisopropyl) ether	ND		230	16

*mw* 8/14/19

FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87600-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070201 Lab Sample ID: 580-87600-1  
 Matrix: Solid Lab File ID: 0722A016.D  
 Analysis Method: 8270D Date Collected: 07/09/2019 16:25  
 Extract. Method: 3550B Date Extracted: 07/19/2019 10:03  
 Sample wt/vol: 10.056(g) Date Analyzed: 07/22/2019 16:10  
 Con. Extract Vol.: 10 (mL) Dilution Factor: 1  
 Injection Volume: 1 (uL) Level: (low/med) Low  
 % Moisture: 12.1 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 306240 Units: ug/Kg

CAS NO.	SURROGATE	%REC	Q	LIMITS
367-12-4	2-Fluorophenol (Surr)	94		60-125
4165-62-2	Phenol-d5 (Surr)	96		59-120
4165-60-0	Nitrobenzene-d5 (Surr)	95		62-120
321-60-8	2-Fluorobiphenyl	81		57-120
118-79-6	2,4,6-Tribromophenol (Surr)	88		52-125
1718-51-0	Terphenyl-d14 (Surr)	121	<i>X</i>	58-120

*MW 8/14/19*

FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87600-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070202

Lab Sample ID: 580-87600-2

Matrix: Solid

Lab File ID: 0722A019.D

Analysis Method: 8270D

Date Collected: 07/09/2019 17:00

Extract. Method: 3550B

Date Extracted: 07/19/2019 10:03

Sample wt/vol: 10.728(g)

Date Analyzed: 07/22/2019 17:22

Con. Extract Vol.: 10(mL)

Dilution Factor: 1

Injection Volume: 1(uL)

Level: (low/med) Low

% Moisture: 62.2

GPC Cleanup: (Y/N) N

Analysis Batch No.: 306240

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
108-95-2	Phenol	ND		370	57
111-44-4	Bis(2-chloroethyl)ether	ND		250	19
95-57-8	2-Chlorophenol	ND		490	32
541-73-1	1,3-Dichlorobenzene	ND		120	12
106-46-7	1,4-Dichlorobenzene	ND		120	20
100-51-6	Benzyl alcohol	ND		1200	190
95-50-1	1,2-Dichlorobenzene	ND		120	30
95-48-7	2-Methylphenol	ND		370	24
15831-10-4	3 & 4 Methylphenol	ND		490	37
621-64-7	N-Nitrosodi-n-propylamine	ND		490	54
67-72-1	Hexachloroethane	ND		370	22
98-95-3	Nitrobenzene	ND		490	49
78-59-1	Isophorone	ND		370	18
88-75-5	2-Nitrophenol	ND		490	52
105-67-9	2,4-Dimethylphenol	ND		250	37
65-85-0	Benzoic acid	ND		4900	1400
111-91-1	Bis(2-chloroethoxy)methane	ND		490	44
120-83-2	2,4-Dichlorophenol	ND		250	37
120-82-1	1,2,4-Trichlorobenzene	ND		120	15
91-20-3	Naphthalene	ND		62	12
106-47-8	4-Chloroaniline	ND		3700	990
87-68-3	Hexachlorobutadiene	ND		120	37
59-50-7	4-Chloro-3-methylphenol	ND		370	81
91-57-6	2-Methylnaphthalene	ND		120	22
77-47-4	Hexachlorocyclopentadiene	ND		250	49
88-06-2	2,4,6-Trichlorophenol	ND		370	89
95-95-4	2,4,5-Trichlorophenol	ND		490	110
91-58-7	2-Chloronaphthalene	ND		62	12
88-74-4	2-Nitroaniline	ND		250	37
131-11-3	Dimethyl phthalate	ND		370	32
208-96-8	Acenaphthylene	ND		62	12
606-20-2	2,6-Dinitrotoluene	ND		370	84
99-09-2	3-Nitroaniline	ND		490	99
83-32-9	Acenaphthene	ND		62	12

FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87600-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070202

Lab Sample ID: 580-87600-2

Matrix: Solid

Lab File ID: 0722A019.D

Analysis Method: 8270D

Date Collected: 07/09/2019 17:00

Extract. Method: 3550B

Date Extracted: 07/19/2019 10:03

Sample wt/vol: 10.728(g)

Date Analyzed: 07/22/2019 17:22

Con. Extract Vol.: 10(mL)

Dilution Factor: 1

Injection Volume: 1(uL)

Level: (low/med) Low

% Moisture: 62.2

GPC Cleanup: (Y/N) N

Analysis Batch No.: 306240

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
51-28-5	2,4-Dinitrophenol	ND		2500	490
100-02-7	4-Nitrophenol	ND		3700	910
132-64-9	Dibenzofuran	ND		370	15
121-14-2	2,4-Dinitrotoluene	ND		490	110
84-66-2	Diethyl phthalate	ND		3700	190
7005-72-3	4-Chlorophenyl phenyl ether	ND		490	16
86-73-7	Fluorene	ND		62	12
100-01-6	4-Nitroaniline	ND		370	120
534-52-1	4,6-Dinitro-2-methylphenol	ND		2500	250
86-30-6	N-Nitrosodiphenylamine	ND		150	20
101-55-3	4-Bromophenyl phenyl ether	ND		490	22
118-74-1	Hexachlorobenzene	ND		120	37
87-86-5	Pentachlorophenol	ND		1100	330
85-01-8	Phenanthrene	ND		150	30
120-12-7	Anthracene	ND		62	12
84-74-2	Di-n-butyl phthalate	ND		1200	140
206-44-0	Fluoranthene	ND		62	12
129-00-0	Pyrene	ND		150	16
85-68-7	Butyl benzyl phthalate	ND		490	130
91-94-1	3,3'-Dichlorobenzidine	ND		990	250
56-55-3	Benzo[a]anthracene	ND		62	12
218-01-9	Chrysene	ND		150	32
117-81-7	Bis(2-ethylhexyl) phthalate	280	JQ	1500	180
117-84-0	Di-n-octyl phthalate	ND		370	140
50-32-8	Benzo[a]pyrene	ND		150	32
193-39-5	Indeno[1,2,3-cd]pyrene	ND		99	12
53-70-3	Dibenz(a,h)anthracene	ND		120	30
191-24-2	Benzo[g,h,i]perylene	ND		150	22
86-74-8	Carbazole	ND		370	20
90-12-0	1-Methylnaphthalene	ND		74	12
205-99-2	Benzo[b]fluoranthene	ND		62	12
207-08-9	Benzo[k]fluoranthene	ND		150	35
108-60-1	bis(chloroisopropyl) ether	ND		490	35

*MW 8/4/19*

FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87600-1  
SDG No.: \_\_\_\_\_  
Client Sample ID: 19070202 Lab Sample ID: 580-87600-2  
Matrix: Solid Lab File ID: 0722A019.D  
Analysis Method: 8270D Date Collected: 07/09/2019 17:00  
Extract. Method: 3550B Date Extracted: 07/19/2019 10:03  
Sample wt/vol: 10.728(g) Date Analyzed: 07/22/2019 17:22  
Con. Extract Vol.: 10(mL) Dilution Factor: 1  
Injection Volume: 1(uL) Level: (low/med) Low  
% Moisture: 62.2 GPC Cleanup: (Y/N) N  
Analysis Batch No.: 306240 Units: ug/Kg

CAS NO.	SURROGATE	%REC	Q	LIMITS
367-12-4	2-Fluorophenol (Surr)	84		60-125
4165-62-2	Phenol-d5 (Surr)	90		59-120
4165-60-0	Nitrobenzene-d5 (Surr)	72		62-120
321-60-8	2-Fluorobiphenyl	75		57-120
118-79-6	2,4,6-Tribromophenol (Surr)	72		52-125
1718-51-0	Terphenyl-d14 (Surr)	118		58-120

*mu 8/14/19*





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### MEMORANDUM

DATE: August 14, 2019

TO: Seth Wing, START-IV Project Manager, E & E, Seattle, WA

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington *MW*

SUBJ: **Organic Data Quality Assurance Review, May Creek Removal Action Site, Renton, Washington**

REF: TO: TO-68HE0718F0470 PAN: 1004530.0470.001.01

The data quality assurance review of 2 soil samples collected from the May Creek Removal Action site located in Renton, Washington, has been completed. Analyses for Chlorinated Pesticides (EPA Method 8081) and Polychlorinated Biphenyls (PCBs - EPA Method 8082) were performed by Test America, Inc., Tacoma, Washington. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Manual Process (S2B/4VM).

The samples were numbered: 19070201 19070202

#### Data Qualifications:

##### 1. Sample Holding Times: Acceptable.

The samples were maintained at 0°C to 6°C. The samples were collected on July 9, 2019, extracted on July 19, 2019, and were analyzed by July 27, 2019, therefore meeting QC criteria of less than 14 days between collection and soil sample extraction and less than 40 days between extraction and analysis. There are no holding time limits for Method 8082 PCBs.

##### 2. Instrument Performance: Acceptable.

The surrogate retention time percent difference between the initial calibration standards and the remaining standards and samples was  $\leq 0.3\%$  for capillary column analyses.

##### 3. Initial and Continuing Calibration: Satisfactory.

All initial calibration relative standard deviations (RSDs) were within QC limits. All continuing calibration % differences (% D) were within QC limits except several high results (no actions were taken based on this outlier as all SMC sample results were within QC limits and/or the high outliers were not detected in the samples) and high and low Toxaphene results (no actions were taken as this analyte was not detected in the samples).

##### 4. Blanks: Acceptable.

A method blank was prepared at the required frequency of every time samples were extracted for each matrix and for each concentration level, or every 20 samples, whichever is greater, and for each

analytical system. No target analytes were detected in the laboratory blanks.

**5. System Monitoring Compounds (SMCs): Satisfactory.**

All recoveries of the SMCs were within QC limits except a high recovery in PCB and Pesticide continuing calibration blanks (no actions were taken as no analytes were detected in the blanks) and a low outlier in sample 19070201 (no actions were taken as matrix interference is suspected).

**7. Blank Spike (BS) Analyses: Acceptable.**

BS and BS duplicate recoveries were within QC limits.

**8. Matrix Spike (MS) and MS Duplicate (MSD) Analyses: Satisfactory.**

MS and MSD recoveries were within QC limits except several low Pesticide recoveries (no actions were taken based on spike outliers alone).

**9. Duplicates: Satisfactory.**

Relative Percent Differences (RPDs) of all spiked analytes were within the required control limits except 4,4'-DDT and Methoxychlor; no actions were taken based on duplicate outliers alone.

**10. Compound Identification: Satisfactory.**

All positive sample results were dual-column confirmed with differences between the columns less than 40% except PCB-1254 in sample 19070201; the reported result was the lower of the two columns and the associated result was qualified as an estimated quantity with an unknown bias (JK).

**11. Target Compound Quantitation and Quantitation Limits: Acceptable.**

Sample results and quantitation limits were correctly calculated.

**12. Laboratory Contact**

No laboratory contact was required.

**13. Overall Assessment**

A total of 56 results were validated in this data memorandum. No sample results were qualified as estimated quantities (J) based on duplicate precision outliers, spike accuracy outliers, holding time outliers, incorrect sample containers, or sample temperature outliers. No sample results were rejected (R).

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result. This updated memorandum provides additional results that weren't provided in the original submittal.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the analytical method(s), the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, and/or the Office of Emergency and Remedial Response Publication "National Functional Guidelines for Superfund Organic Methods Data Review, January 2017". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

### Data Qualifiers and Definitions

- H - The sample result is biased high.
- J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
- K - The bias of the sample is not known.
- L - The sample result is biased low.
- Q - Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.
- R - The data is rejected and unusable. The analyte may or may not be present in the sample.
- U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.

FORM I  
PESTICIDES ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87600-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070201 Lab Sample ID: 580-87600-1  
 Matrix: Solid Lab File ID: 45F072619a021.D  
 Analysis Method: 8081B Date Collected: 07/09/2019 16:25  
 Extraction Method: 3546 Date Extracted: 07/19/2019 13:39  
 Sample wt/vol: 12.724(g) Date Analyzed: 07/27/2019 00:02  
 Con. Extract Vol.: 10(mL) Dilution Factor: 1  
 Injection Volume: 1(uL) GC Column: ZB-CLPest-1 ID: 0.25(mm)  
 % Moisture: 12.1 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 306695 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
309-00-2	Aldrin	ND		2.7	0.34
319-84-6	alpha-BHC	ND		1.8	0.14
319-85-7	beta-BHC	ND		4.5	0.22
319-86-8	delta-BHC	ND	F1	2.7	0.25
58-89-9	gamma-BHC (Lindane)	ND		1.8	0.67
72-54-8	4,4'-DDD	ND		1.8	0.21
72-55-9	4,4'-DDE	ND		1.8	0.33
50-29-3	4,4'-DDT	ND	F2 F1	1.8	0.33
60-57-1	Dieldrin	ND		1.8	0.31
959-98-8	Endosulfan I	ND		1.8	0.30
33213-65-9	Endosulfan II	ND		1.8	0.23
1031-07-8	Endosulfan sulfate	ND		1.8	0.25
72-20-8	Endrin	ND		1.8	0.42
7421-93-4	Endrin aldehyde	ND		18	4.3
76-44-8	Heptachlor	ND	F1	2.7	0.17
1024-57-3	Heptachlor epoxide	ND		2.7	0.27
72-43-5	Methoxychlor	ND	F2 F1	8.9	0.33
53494-70-5	Endrin ketone	ND		1.8	0.38
8001-35-2	Toxaphene	ND		89	22
5103-71-9	cis-Chlordane	ND		1.8	0.67
5103-74-2	trans-Chlordane	ND		2.7	0.29

CAS NO.	SURROGATE	%REC	Q	LIMITS
877-09-8	Tetrachloro-m-xylene	43		50-123
2051-24-3	DCB Decachlorobiphenyl	56		36-136

FORM I  
PESTICIDES ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87600-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070202

Lab Sample ID: 580-87600-2

Matrix: Solid

Lab File ID: 45F072619a024.D

Analysis Method: 8081B

Date Collected: 07/09/2019 17:00

Extraction Method: 3546

Date Extracted: 07/19/2019 13:42

Sample wt/vol: 14.281(g)

Date Analyzed: 07/27/2019 02:02

Con. Extract Vol.: 10(mL)

Dilution Factor: 1

Injection Volume: 1(uL)

GC Column: ZB-CLPest-1 ID: 0.25(mm)

% Moisture: 62.2

GPC Cleanup: (Y/N) N

Analysis Batch No.: 306695

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
309-00-2	Aldrin	ND		5.6	0.70
319-84-6	alpha-BHC	ND		3.7	0.30
319-85-7	beta-BHC	ND		9.3	0.46
319-86-8	delta-BHC	ND		5.6	0.52
58-89-9	gamma-BHC (Lindane)	ND		3.7	1.4
72-54-8	4,4'-DDD	ND		3.7	0.43
72-55-9	4,4'-DDE	ND		3.7	0.69
50-29-3	4,4'-DDT	ND		3.7	0.69
60-57-1	Dieldrin	ND		3.7	0.65
959-98-8	Endosulfan I	ND		3.7	0.63
33213-65-9	Endosulfan II	ND		3.7	0.48
1031-07-8	Endosulfan sulfate	ND		3.7	0.52
72-20-8	Endrin	ND		3.7	0.87
7421-93-4	Endrin aldehyde	ND		37	8.9
76-44-8	Heptachlor	ND		5.6	0.35
1024-57-3	Heptachlor epoxide	ND		5.6	0.56
72-43-5	Methoxychlor	ND		19	0.69
53494-70-5	Endrin ketone	ND		3.7	0.78
8001-35-2	Toxaphene	ND		190	46
5103-71-9	cis-Chlordane	ND		3.7	1.4
5103-74-2	trans-Chlordane	ND		5.6	0.59

CAS NO.	SURROGATE	%REC	Q	LIMITS
877-09-8	Tetrachloro-m-xylene	63		50-123
2051-24-3	DCB Decachlorobiphenyl	83		36-136

*MW 8/4/19*

FORM I  
PCBS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87600-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070201 Lab Sample ID: 580-87600-1  
 Matrix: Solid Lab File ID: 35F072619a029.d  
 Analysis Method: 8082A Date Collected: 07/09/2019 16:25  
 Extraction Method: 3546 Date Extracted: 07/19/2019 13:39  
 Sample wt/vol: 12.724(g) Date Analyzed: 07/26/2019 23:15  
 Con. Extract Vol.: 10(mL) Dilution Factor: 1  
 Injection Volume: 1(uL) GC Column: ZB-CLPest-1 ID: 0.25 (mm)  
 % Moisture: 12.1 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 306768 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
12674-11-2	PCB-1016	ND		0.018	0.0066
11104-28-2	PCB-1221	ND		0.018	0.0038
11141-16-5	PCB-1232	ND		0.018	0.0044
53469-21-9	PCB-1242	ND		0.018	0.0031
12672-29-6	PCB-1248	ND		0.018	0.0026
11096-82-5	PCB-1260	ND		0.018	0.0066

CAS NO.	SURROGATE	%REC	Q	LIMITS
2051-24-3	DCB Decachlorobiphenyl	68		39-142
877-09-8	Tetrachloro-m-xylene	93		35-129

*mn 8/14/19*

FORM I  
PCBS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87600-1  
SDG No.: \_\_\_\_\_  
Client Sample ID: 19070201 Lab Sample ID: 580-87600-1  
Matrix: Solid Lab File ID: 35F072619a029.d  
Analysis Method: 8082A Date Collected: 07/09/2019 16:25  
Extraction Method: 3546 Date Extracted: 07/19/2019 13:39  
Sample wt/vol: 12.724(g) Date Analyzed: 07/26/2019 23:15  
Con. Extract Vol.: 10 (mL) Dilution Factor: 1  
Injection Volume: 1 (uL) GC Column: ZB-CLPest-2 ID: 0.25 (mm)  
% Moisture: 12.1 GPC Cleanup: (Y/N) N  
Analysis Batch No.: 306768 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
11097-69-1	PCB-1254	0.12	<i>OK</i>	0.018	0.0033

*mm 8/14/19*

FORM I  
PCBS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87600-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070202 Lab Sample ID: 580-87600-2  
 Matrix: Solid Lab File ID: 35F072619a032.d  
 Analysis Method: 8082A Date Collected: 07/09/2019 17:00  
 Extraction Method: 3546 Date Extracted: 07/19/2019 13:42  
 Sample wt/vol: 14.281(g) Date Analyzed: 07/27/2019 00:06  
 Con. Extract Vol.: 10(mL) Dilution Factor: 1  
 Injection Volume: 1(uL) GC Column: ZB-CLPest-1 ID: 0.25(mm)  
 % Moisture: 62.2 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 306768 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
12674-11-2	PCB-1016	ND		0.037	0.014
11104-28-2	PCB-1221	ND		0.037	0.0078
11141-16-5	PCB-1232	ND		0.037	0.0091
53469-21-9	PCB-1242	ND		0.037	0.0065
12672-29-6	PCB-1248	ND		0.037	0.0054
11097-69-1	PCB-1254	ND		0.037	0.0069
11096-82-5	PCB-1260	ND		0.037	0.014

CAS NO.	SURROGATE	%REC	Q	LIMITS
2051-24-3	DCB Decachlorobiphenyl	90		39-142
877-09-8	Tetrachloro-m-xylene	91		35-129

*John 8-14-19*





## ecology and environment, inc.

Global Environmental Specialists

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### MEMORANDUM

DATE: August 14, 2019

TO: Seth Wing, START-IV Project Manager, E & E, Seattle, WA

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington *MW*

SUBJ: Organic Data Quality Assurance Review, May Creek Removal Action Site, Renton, Washington

REF: TO: TO-68HE0718F0470 PAN: 1004530.0470.001.01

The data quality assurance review of 2 soil samples collected from the May Creek Removal Action site located in Renton, Washington, has been completed. Analysis for Extended Diesel Range Total Petroleum Hydrocarbons (Ecology Method NWTPH-Dx) was performed by Test America, Inc., Tacoma, Washington. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Manual Process (S2B/4VM).

The samples were numbered: 19070201 19070202

#### Data Qualifications:

**1. Sample Holding Times: Acceptable.**

The samples were maintained at  $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ . The samples were collected on July 9, 2019, extracted on July 23, 2019, and analyzed by July 28, 2019, therefore meeting QC criteria of less than 14 days between collection and extraction for soil samples and less than 40 days between extraction and analysis.

**2. Initial Calibration: Acceptable.**

Calculations were verified as correct. All relative percent differences (RPDs) were within the laboratory control limits.

**3. Continuing Calibration: Acceptable.**

Calculations were verified as correct. All percent differences (%Ds) were within the laboratory control limits.

**4. Blanks: Acceptable.**

A method blank was analyzed for each extraction batch for each matrix and analysis system. Diesel- and motor oil-range TPHs were not detected in the method blank.

**5. System Monitoring Compounds (SMC): Acceptable.**

All recoveries of the SMCs were within QC limits.

**6. Matrix Spike (MS) and MS Duplicate (MSD): Acceptable.**

MS and MSD results were within QC limits.

**7. Blank Spike (BS) and BS Duplicate (BSD): Acceptable.**

BS and BSD recoveries were within QC limits.

**8. Duplicates: Acceptable.**

All spike duplicate results were within QC limits.

**9. Quantitation and Quantitation Limits: Acceptable.**

Sample concentrations were correctly calculated.

**10. Laboratory Contact: Not Required.**

No laboratory contact was required.

**11. Overall Assessment of Data for Use**

A total of four results were validated in this data memorandum. No sample results were qualified as estimated quantities (J) based on duplicate precision outliers, spike accuracy outliers, holding time outliers, incorrect sample containers, or sample temperature outliers. No sample results were rejected (R).

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the analytical method(s), the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, and/or the Office of Emergency and Remedial Response Publication "National Functional Guidelines for Superfund Organic Methods Data Review, January 2017". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

H - The sample result is biased high.

J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

K - The bias of the sample is not known.

L - The sample result is biased low.

Q - Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.

- R - The data is rejected and unusable. The analyte may or may not be present in the sample.
- U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.

FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87600-1  
SDG No.: \_\_\_\_\_  
Client Sample ID: 19070201 Lab Sample ID: 580-87600-1  
Matrix: Solid Lab File ID: 006F0901.D  
Analysis Method: NWTPH-Dx Date Collected: 07/09/2019 16:25  
Extraction Method: 3546 Date Extracted: 07/23/2019 11:06  
Sample wt/vol: 11.292(g) Date Analyzed: 07/28/2019 18:29  
Con. Extract Vol.: 10(mL) Dilution Factor: 1  
Injection Volume: 1(uL) GC Column: ZB-1HT ID: 0.25(mm)  
% Moisture: 12.1 GPC Cleanup: (Y/N) N  
Analysis Batch No.: 306831 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00163	#2 Diesel (C10-C24)	ND		50	12
STL00299	Motor Oil (>C24-C36)	ND		50	18

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	82		50-150

*Mu 8-15-19*

FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87600-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070202 Lab Sample ID: 580-87600-2  
 Matrix: Solid Lab File ID: 009F1201.D  
 Analysis Method: NWTPH-Dx Date Collected: 07/09/2019 17:00  
 Extraction Method: 3546 Date Extracted: 07/23/2019 11:06  
 Sample wt/vol: 10.081(g) Date Analyzed: 07/28/2019 19:37  
 Con. Extract Vol.: 10(mL) Dilution Factor: 1  
 Injection Volume: 1(uL) GC Column: ZB-1HT ID: 0.25 (mm)  
 % Moisture: 62.2 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 306831 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00163	#2 Diesel (C10-C24)	ND		130	32
STL00299	Motor Oil (>C24-C36)	ND		130	46

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	109		50-150

*MW 8-14-19*



## ecology and environment, inc.

Global Environmental Specialists

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### MEMORANDUM

DATE: January 8, 2020

TO: Seth Wing, START-IV Project Manager, E & E, Seattle, WA

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington *MW*

SUBJ: **Inorganic Data Quality Assurance Review, May Creek Removal Action Site, Renton, Washington**

REF: TO: TO-68HE0718F0470 PAN: 1004530.0470.001.01

The data quality assurance review of 4 soil samples collected from the May Creek Removal Action site in Renton, Washington, has been completed. Target Analyte List (TAL) metals analyses (EPA Methods 6010 and 7471) were performed by Test America, Inc., Tacoma, Washington. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Manual Process (S2B/4VM).

The samples were numbered: 19070001 19070002 19070003 19070004

#### Data Qualifications:

##### 1. **Sample Holding Times: Satisfactory.**

The samples were received at 10.5°C, exceeding the QC limits of < 6°C (only applies to mercury); the associated mercury results were qualified as estimated quantities with a low bias (JL or UJL). The samples were collected on July 10, 2019, and were analyzed by July 18, 2019, therefore meeting QC criteria of less than 6 months between collection, extraction, and analysis (28 days for mercury).

##### 2. **Initial and Continuing Calibration: Acceptable.**

A minimum of one calibration standard and a blank were analyzed at the beginning of the ICP analysis sequence and after every 10 samples. No results were greater than 110% of the highest calibration standard. All ICP recoveries were within the QC limits. All AA recoveries were within QC limits and the initial calibration correlation coefficient was > 0.995.

##### 3. **Blanks: Satisfactory.**

A preparation blank was analyzed for each 20 samples or per matrix per concentration level. Blanks were analyzed after each Initial or Continuing Calibration Verification. There were no detections in any blanks that potentially affected sample results except beryllium and cadmium; associated sample results less than the reporting limit were qualified as not detected (U).

##### 4. **ICP Interference Check Sample: Acceptable.**

An Interference Check Sample (ICS) was analyzed at the beginning of each sequence or at least twice every 8 hours, whichever was more frequent. All applicable ICS (solution AB) results were within

QC limits of 80% - 120% recovery.

**5. Duplicate Analysis: Acceptable.**

A laboratory spike duplicate analysis was performed per SDG or per matrix per concentration level, whichever was more frequent. All spike duplicate results were within QC limits.

**6. Laboratory Control Sample Analysis: Acceptable.**

A Laboratory Control Sample (LCS) and LCS duplicate were analyzed per SDG per matrix. All LCS results were within the established control limits.

**7. Overall Assessment of Data for Use**

This memo was updated in January 2020 to include silver results which were inadvertently omitted.

A total of 92 results were validated in this data memorandum. No sample results were qualified as estimated quantities (J) based on duplicate precision outliers, holding time outliers, incorrect sample containers, spike accuracy outliers, or serial dilution outliers. No sample results were rejected (R). A total of 4 sample results were qualified as estimated quantities (J) based on sample temperature outliers.

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the analytical method(s), the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, and/or the Office of Emergency and Remedial Response Publication "National Functional Guidelines for Superfund Inorganic Methods Data Review, January 2017". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

- H - The sample result is biased high.
- J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
- K - The bias of the sample is not known.
- L - The sample result is biased low.
- Q - Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.
- R - The data is rejected and unusable. The analyte may or may not be present in the sample.
- U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.



1A-IN  
INORGANIC ANALYSIS DATA SHEET  
METALS

Client Sample ID: 19070001

Lab Sample ID: 580-87601-1

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87601-1

SDG ID.:

Matrix: Solid

Date Sampled: 07/10/2019 10:00

Reporting Basis: DRY

Date Received: 07/11/2019 16:00

% Solids: 90.2

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7429-90-5	Aluminum	7800	52	6.9	mg/Kg			1	6010D
7440-36-0	Antimony	7.7	2.1	0.18	mg/Kg			1	6010D
7440-38-2	Arsenic	19	2.1	0.17	mg/Kg			1	6010D
7440-39-3	Barium	45	0.35	0.055	mg/Kg			1	6010D
7440-41-7	Beryllium	0.11 <i>ma</i>	0.69 <i>U</i>	0.010	mg/Kg	<i>J</i>	<i>Q</i>	1	6010D
7440-43-9	Cadmium	0.95	0.69	0.034	mg/Kg			1	6010D
7440-70-2	Calcium	5800	38	6.9	mg/Kg			1	6010D
7440-47-3	Chromium	25	0.90	0.15	mg/Kg			1	6010D
7440-48-4	Cobalt	6.5	0.69	0.017	mg/Kg			1	6010D
7440-50-8	Copper	51	1.7	0.28	mg/Kg			1	6010D
7439-89-6	Iron	15000	45	11	mg/Kg			1	6010D
7439-92-1	Lead	63	1.0	0.15	mg/Kg			1	6010D
7439-95-4	Magnesium	4200	38	5.5	mg/Kg			1	6010D
7439-96-5	Manganese	240	1.4	0.27	mg/Kg			1	6010D
7440-02-0	Nickel	23	0.69	0.071	mg/Kg			1	6010D
7440-09-7	Potassium	470	110	4.7	mg/Kg			1	6010D
7782-49-2	Selenium	0.28	3.5	0.27	mg/Kg	<i>J</i>	<i>Q</i>	1	6010D
7440-22-4	Silver	0.42	1.7	0.39	mg/Kg	<i>J</i>	<i>Q</i>	1	6010D
7440-23-5	Sodium	260	69	13	mg/Kg			1	6010D
7440-28-0	Thallium	<del>ND</del> <i>mv</i>	3.5 <i>U</i>	0.29	mg/Kg			1	6010D
7440-62-2	Vanadium	28	1.4	0.18	mg/Kg			1	6010D
7440-66-6	Zinc	190	2.8	0.66	mg/Kg			1	6010D
7439-97-6	Mercury	0.071	<i>JL</i> 0.027	0.0082	mg/Kg			1	7471A

*7m1-820*



1A-IN  
INORGANIC ANALYSIS DATA SHEET  
METALS

Client Sample ID: 19070002

Lab Sample ID: 580-87601-2

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87601-1

SDG ID.:

Matrix: Solid

Date Sampled: 07/10/2019 10:00

Reporting Basis: DRY

Date Received: 07/11/2019 16:00

% Solids: 91.1

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7429-90-5	Aluminum	11000	51	6.8	mg/Kg			1	6010D
7440-36-0	Antimony	1.7	2.1	0.18	mg/Kg	JQ		1	6010D
7440-38-2	Arsenic	6.7	2.1	0.17	mg/Kg			1	6010D
7440-39-3	Barium	50	0.34	0.054	mg/Kg		B/m	1	6010D
7440-41-7	Beryllium	<del>0.15</del>	0.68	U 0.010	mg/Kg	Jm		1	6010D
7440-43-9	Cadmium	<del>0.66</del>	0.68	U 0.034	mg/Kg	Jm		1	6010D
7440-70-2	Calcium	5800	38	6.8	mg/Kg			1	6010D
7440-47-3	Chromium	26	0.89	0.15	mg/Kg			1	6010D
7440-48-4	Cobalt	7.9	0.68	0.017	mg/Kg			1	6010D
7440-50-8	Copper	37	1.7	0.27	mg/Kg			1	6010D
7439-89-6	Iron	17000	44	11	mg/Kg			1	6010D
7439-92-1	Lead	71	1.0	0.15	mg/Kg			1	6010D
7439-95-4	Magnesium	5200	38	5.4	mg/Kg			1	6010D
7439-96-5	Manganese	310	1.4	0.26	mg/Kg			1	6010D
7440-02-0	Nickel	28	0.68	0.070	mg/Kg			1	6010D
7440-09-7	Potassium	630	110	4.7	mg/Kg		B/m	1	6010D
7782-49-2	Selenium	<del>ND</del>	3.4	U 0.27	mg/Kg			1	6010D
7440-22-4	Silver	<del>ND</del>	1.7	U 0.38	mg/Kg			1	6010D
7440-23-5	Sodium	300	68	13	mg/Kg			1	6010D
7440-28-0	Thallium	<del>ND</del>	3.4	U 0.29	mg/Kg			1	6010D
7440-62-2	Vanadium	38	1.4	0.18	mg/Kg			1	6010D
7440-66-6	Zinc	87	2.7	0.65	mg/Kg			1	6010D
7439-97-6	Mercury	0.043	JL 0.025	0.0074	mg/Kg			1	7471A

*mmf-620*

1A-IN  
INORGANIC ANALYSIS DATA SHEET  
METALS

Client Sample ID: 19070003

Lab Sample ID: 580-87601-3

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87601-1

SDG ID.:

Matrix: Solid

Date Sampled: 07/10/2019 10:15

Reporting Basis: DRY

Date Received: 07/11/2019 16:00

% Solids: 89.4

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7429-90-5	Aluminum	12000	55	7.2	mg/Kg			1	6010D
7440-36-0	Antimony	3.5	2.2	0.19	mg/Kg			1	6010D
7440-38-2	Arsenic	14	2.2	0.18	mg/Kg			1	6010D
7440-39-3	Barium	54	0.36	0.058	mg/Kg		Aw	1	6010D
7440-41-7	Beryllium	0.12 <i>aw</i>	0.73	0.011	mg/Kg	aw		1	6010D
7440-43-9	Cadmium	1.2	0.73	0.036	mg/Kg			1	6010D
7440-70-2	Calcium	7700	40	7.3	mg/Kg			1	6010D
7440-47-3	Chromium	33	0.95	0.16	mg/Kg			1	6010D
7440-48-4	Cobalt	12	0.73	0.018	mg/Kg			1	6010D
7440-50-8	Copper	270	1.8	0.29	mg/Kg			1	6010D
7439-89-6	Iron	27000	47	11	mg/Kg			1	6010D
7439-92-1	Lead	120	1.1	0.16	mg/Kg			1	6010D
7439-95-4	Magnesium	10000	40	5.8	mg/Kg			1	6010D
7439-96-5	Manganese	440	1.5	0.28	mg/Kg			1	6010D
7440-02-0	Nickel	27	0.73	0.075	mg/Kg			1	6010D
7440-09-7	Potassium	350	120	5.0	mg/Kg			1	6010D
7782-49-2	Selenium	ND <i>aw</i>	3.6	0.29	mg/Kg			1	6010D
7440-22-4	Silver	0.45	1.8	0.41	mg/Kg	J Q		1	6010D
7440-23-5	Sodium	350	73	14	mg/Kg			1	6010D
7440-28-0	Thallium	ND <i>aw</i>	3.6	0.31	mg/Kg		aw	1	6010D
7440-62-2	Vanadium	56	1.5	0.19	mg/Kg			1	6010D
7440-66-6	Zinc	200	2.9	0.70	mg/Kg			1	6010D
7439-97-6	Mercury	0.054	0.022	0.0065	mg/Kg			1	7471A

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1A-IN  
INORGANIC ANALYSIS DATA SHEET  
METALS

Client Sample ID: 19070004

Lab Sample ID: 580-87601-4

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87601-1

SDG ID.:

Matrix: Solid

Date Sampled: 07/10/2019 10:20

Reporting Basis: DRY

Date Received: 07/11/2019 16:00

% Solids: 91.3

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7429-90-5	Aluminum	11000	52	6.9	mg/Kg			1	6010D
7440-36-0	Antimony	1.6	2.1	0.18	mg/Kg	J		1	6010D
7440-38-2	Arsenic	6.5	2.1	0.17	mg/Kg			1	6010D
7440-39-3	Barium	52	0.35	0.055	mg/Kg		P	1	6010D
7440-41-7	Beryllium	0.16	0.70	0.010	mg/Kg	J		1	6010D
7440-43-9	Cadmium	0.66	0.70	0.034	mg/Kg	L		1	6010D
7440-70-2	Calcium	5900	38	7.0	mg/Kg			1	6010D
7440-47-3	Chromium	32	0.90	0.15	mg/Kg			1	6010D
7440-48-4	Cobalt	9.1	0.70	0.017	mg/Kg			1	6010D
7440-50-8	Copper	89	1.7	0.28	mg/Kg			1	6010D
7439-89-6	Iron	20000	45	11	mg/Kg			1	6010D
7439-92-1	Lead	63	1.0	0.15	mg/Kg			1	6010D
7439-95-4	Magnesium	6400	38	5.5	mg/Kg			1	6010D
7439-96-5	Manganese	340	1.4	0.27	mg/Kg			1	6010D
7440-02-0	Nickel	27	0.70	0.072	mg/Kg			1	6010D
7440-09-7	Potassium	660	110	4.7	mg/Kg		P	1	6010D
7782-49-2	Selenium	ND	3.5	0.28	mg/Kg			1	6010D
7440-22-4	Silver	ND	1.7	0.39	mg/Kg			1	6010D
7440-23-5	Sodium	360	70	13	mg/Kg			1	6010D
7440-28-0	Thallium	ND	3.5	0.29	mg/Kg			1	6010D
7440-62-2	Vanadium	42	1.4	0.18	mg/Kg			1	6010D
7440-66-6	Zinc	110	2.8	0.66	mg/Kg			1	6010D
7439-97-6	Mercury	0.048	0.020	0.0060	mg/Kg			1	7471A

*Handwritten signature/initials*



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### MEMORANDUM

DATE: August 15, 2019

TO: Seth Wing, START-IV Project Manager, E & E, Seattle, WA

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington *MW*

SUBJ: **Organic Data Quality Assurance Review, May Creek Removal Action Site, Renton, Washington**

REF: TO: TO-68HE0718F0470 PAN: 1004530.0470.001.01

The data quality assurance review of four soil samples collected from the May Creek Removal Action site located in Renton, Washington, has been completed. Analysis for Extended Diesel Range Total Petroleum Hydrocarbons (Ecology Method NWTPH-Dx) was performed by Test America, Inc., Tacoma, Washington. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Manual Process (S2B/4VM).

The samples were numbered: 19070001 19070002 19070003 19070004

#### Data Qualifications:

##### 1. **Sample Holding Times: Satisfactory.**

The samples were received at 10.5°C, exceeding the QC limits of 4°C ± 2°C; associated positive results and sample quantitation limits were qualified as estimated quantities with a low bias (JL or UJL). The samples were collected on July 10, 2019, extracted on July 23, 2019, and analyzed by July 28, 2019, therefore meeting QC criteria of less than 14 days between collection and extraction for soil and preserved water samples and less than 40 days between extraction and analysis.

##### 2. **Initial Calibration: Acceptable.**

Calculations were verified as correct. All relative percent differences (RPDs) were within the laboratory control limits.

##### 3. **Continuing Calibration: Acceptable.**

Calculations were verified as correct. All percent differences (%Ds) were within the laboratory control limits.

##### 4. **Blanks: Acceptable.**

A method blank was analyzed for each extraction batch for each matrix and analysis system. Diesel- and motor oil-range TPHs were not detected in the method blank.

**5. System Monitoring Compounds (SMC): Acceptable.**

All recoveries of the SMCs were within QC limits.

**6. Blank Spike (BS) and BS Duplicate (BSD): Satisfactory.**

BS and BSD recoveries were within QC limits.

**7. Duplicates: Acceptable.**

All duplicate and spike duplicate results were within QC limits.

**8. Quantitation and Quantitation Limits: Acceptable.**

Sample concentrations were correctly calculated.

**9. Laboratory Contact: Not Required.**

No laboratory contact was required.

**10. Overall Assessment of Data for Use**

A total of eight results were validated in this data memorandum. No sample results were qualified as estimated quantities (J) based on duplicate precision outliers, spike accuracy outliers, holding time outliers, incorrect sample containers. Eight sample results were qualified as estimated quantities based on sample temperature outliers. No sample results were rejected (R).

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the analytical method(s), the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, and/or the Office of Emergency and Remedial Response Publication "National Functional Guidelines for Superfund Organic Methods Data Review, January 2017". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

H - The sample result is biased high.

J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

K - The bias of the sample is not known.

L - The sample result is biased low.

Q - Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.

- R - The data is rejected and unusable. The analyte may or may not be present in the sample.
- U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.

FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87601-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070001 Lab Sample ID: 580-87601-1  
 Matrix: Solid Lab File ID: 010F1301.D  
 Analysis Method: NWTPH-Dx Date Collected: 07/10/2019 10:00  
 Extraction Method: 3546 Date Extracted: 07/23/2019 11:06  
 Sample wt/vol: 11.411(g) Date Analyzed: 07/28/2019 19:59  
 Con. Extract Vol.: 10(mL) Dilution Factor: 10  
 Injection Volume: 1(uL) GC Column: ZB-1HT ID: 0.25(mm)  
 % Moisture: 9.8 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 306831 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00163	#2 Diesel (C10-C24)	250	JG	490	120
STL00299	Motor Oil (>C24-C36)	1900	JL	490	170

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	96		50-150

*mw 8/4/19*

FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87601-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070002 Lab Sample ID: 580-87601-2  
 Matrix: Solid Lab File ID: 011F1501.D  
 Analysis Method: NWTPH-Dx Date Collected: 07/10/2019 10:00  
 Extraction Method: 3546 Date Extracted: 07/23/2019 11:06  
 Sample wt/vol: 10.746(g) Date Analyzed: 07/28/2019 20:43  
 Con. Extract Vol.: 10(mL) Dilution Factor: 5  
 Injection Volume: 1(uL) GC Column: ZB-1HT ID: 0.25(mm)  
 % Moisture: 8.9 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 306831 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00163	#2 Diesel (C10-C24)	65	J <i>Q</i>	260	63
STL00299	Motor Oil (>C24-C36)	560	<i>JC</i>	260	89

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	64		50-150

*mu 8/14/19*



FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87601-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070003 Lab Sample ID: 580-87601-3  
 Matrix: Solid Lab File ID: 013F1701.D  
 Analysis Method: NWTPH-Dx Date Collected: 07/10/2019 10:15  
 Extraction Method: 3546 Date Extracted: 07/23/2019 11:06  
 Sample wt/vol: 12.316(g) Date Analyzed: 07/28/2019 21:28  
 Con. Extract Vol.: 10 (mL) Dilution Factor: 3  
 Injection Volume: 1 (uL) GC Column: ZB-1HT ID: 0.25 (mm)  
 % Moisture: 10.6 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 306831 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00163	#2 Diesel (C10-C24)	2100	JL	140	34
STL00299	Motor Oil (>C24-C36)	8100	JL	140	48

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	68		50-150

*mw 8/4/19*

FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87601-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070004 Lab Sample ID: 580-87601-4  
 Matrix: Solid Lab File ID: 014F1801.D  
 Analysis Method: NWTPH-Dx Date Collected: 07/10/2019 10:20  
 Extraction Method: 3546 Date Extracted: 07/23/2019 11:06  
 Sample wt/vol: 10.533(g) Date Analyzed: 07/28/2019 21:50  
 Con. Extract Vol.: 10(mL) Dilution Factor: 1  
 Injection Volume: 1(uL) GC Column: ZB-1HT ID: 0.25(mm)  
 % Moisture: 8.7 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 306831 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00163	#2 Diesel (C10-C24)	77	JL	52	13
STL00299	Motor Oil (>C24-C36)	630	JL	52	18

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	69		50-150

*Mu 8/4/9*



**MEMORANDUM**

DATE: August 15, 2019

TO: Seth Wing, START-IV Project Manager, E & E, Seattle, WA

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington *MW*

SUBJ: **Organic Data Quality Assurance Review, May Creek Removal Action Site, Renton, Washington**

REF: TO: TO-681E0718F0470 PAN: 1004530.0470.001.01

The data quality assurance review of 4 soil samples collected from the May Creek Removal Action site located in Renton, Washington, has been completed. Analyses for Chlorinated Pesticides (EPA Method 8081) and Polychlorinated Biphenyls (PCBs - EPA Method 8082) were performed by Test America, Inc., Tacoma, Washington. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Manual Process (S2B/4VM).

The samples were numbered: 19070001 19070002 19070003 19070004

**Data Qualifications:**

**1. Sample Holding Times: Satisfactory.**

The samples were received at 10.5°C, exceeding the QC limits of 0°C to 6°C; associated positive results and sample quantitation limits were qualified as estimated quantities with a low bias (JL or UJL). The samples were collected on July 10, 2019, extracted by July 19, 2019, and were analyzed by July 27, 2019, therefore meeting QC criteria of less than 14 days between collection and soil sample extraction and less than 40 days between extraction and analysis. There are no holding time limits for Method 8082 PCBs.

**2. Instrument Performance: Acceptable.**

The surrogate retention time percent difference between the initial calibration standards and the remaining standards and samples was  $\leq 0.3\%$  for capillary column analyses.

**3. Initial and Continuing Calibration: Satisfactory.**

All initial calibration relative standard deviations (RSDs) were within QC limits. All continuing calibration % differences (% D) were within QC limits except some high pesticide and PCB results and two low Toxaphene results on one column only; no actions were taken based on these outliers as there were no associated positive results.

**4. Blanks: Acceptable.**

A method blank was prepared at the required frequency of every time samples were extracted for each matrix and for each concentration level, or every 20 samples, whichever is greater, and for each

analytical system. No target analytes were detected in the laboratory blanks.

**5. System Monitoring Compounds (SMCs): Satisfactory.**

All recoveries of the SMCs were within QC limits except outliers in samples 19070002 and 19070004; no actions were taken as matrix interference was present.

**6. Blank Spike (BS) Analyses: Acceptable.**

BS and/or BS duplicate recoveries were within QC limits.

**7. Duplicates: Acceptable.**

Relative Percent Differences (RPDs) of all spiked analytes were within the required control limits.

**8. Compound Identification: Satisfactory.**

All positive sample results were dual-column confirmed with differences between the columns less than 40% except PCBs in samples 19070001, 19070003, and 19070004. The lower result was reported and the positive results were qualified as estimated quantities with an unknown bias (JK).

**9. Target Compound Quantitation and Quantitation Limits: Acceptable.**

Sample results and quantitation limits were correctly calculated.

**10. Laboratory Contact**

No laboratory contact was required.

**11. Overall Assessment**

A total of 112 results were validated in this data memorandum. No sample results were qualified as estimated quantities (J) based on duplicate precision outliers, holding time outliers, incorrect sample containers, or spike accuracy outliers. No sample results were rejected (R). A total of 112 sample results were qualified as estimated quantities based on sample temperature outliers.

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result. This updated memorandum provides additional results that weren't provided in the original submittal.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the analytical method(s), the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, and/or the Office of Emergency and Remedial Response Publication "National Functional Guidelines for Superfund Organic Methods Data Review, January 2017". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

H - The sample result is biased high.

J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

- K - The bias of the sample is not known.
- L - The sample result is biased low.
- Q - Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.
- R - The data is rejected and unusable. The analyte may or may not be present in the sample.
- U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.

FORM I  
PESTICIDES ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87601-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070001

Lab Sample ID: 580-87601-1

Matrix: Solid

Lab File ID: 45F072619a025.D

Analysis Method: 8081B

Date Collected: 07/10/2019 10:00

Extraction Method: 3546

Date Extracted: 07/19/2019 13:42

Sample wt/vol: 10.769(g)

Date Analyzed: 07/27/2019 02:50

Con. Extract Vol.: 10(mL)

Dilution Factor: 2

Injection Volume: 1(uL)

GC Column: ZB-CLPest-1 ID: 0.25(mm)

% Moisture: 9.8

GPC Cleanup: (Y/N) N

Analysis Batch No.: 306695

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
309-00-2	Aldrin	ND		6.2	0.78
319-84-6	alpha-BHC	ND		4.1	0.33
319-85-7	beta-BHC	ND		10	0.51
319-86-8	delta-BHC	ND		6.2	0.58
58-89-9	gamma-BHC (Lindane)	ND		4.1	1.5
72-54-8	4,4'-DDD	ND		4.1	0.47
72-55-9	4,4'-DDE	ND		4.1	0.76
50-29-3	4,4'-DDT	ND		4.1	0.76
60-57-1	Dieldrin	ND		4.1	0.72
959-98-8	Endosulfan I	ND		4.1	0.70
33213-65-9	Endosulfan II	ND		4.1	0.54
1031-07-8	Endosulfan sulfate	ND		4.1	0.58
72-20-8	Endrin	ND		4.1	0.97
7421-93-4	Endrin aldehyde	ND		41	9.9
76-44-8	Heptachlor	ND		6.2	0.39
1024-57-3	Heptachlor epoxide	ND		6.2	0.62
72-43-5	Methoxychlor	ND		21	0.76
53494-70-5	Endrin ketone	ND		4.1	0.86
8001-35-2	Toxaphene	ND		210	51
5103-71-9	cis-Chlordane	ND		4.1	1.5
5103-74-2	trans-Chlordane	ND		6.2	0.66

CAS NO.	SURROGATE	%REC	Q	LIMITS
877-09-8	Tetrachloro-m-xylene	68		50-123
2051-24-3	DCB Decachlorobiphenyl	93		36-136

*mw 8/4/19*

FORM I  
PESTICIDES ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87601-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070002

Lab Sample ID: 580-87601-2

Matrix: Solid

Lab File ID: 45F072619a026.D

Analysis Method: 8081B

Date Collected: 07/10/2019 10:00

Extraction Method: 3546

Date Extracted: 07/19/2019 13:42

Sample wt/vol: 11.836(g)

Date Analyzed: 07/27/2019 03:37

Con. Extract Vol.: 10 (mL)

Dilution Factor: 1

Injection Volume: 1 (uL)

GC Column: ZB-CLPest-1 ID: 0.25 (mm)

% Moisture: 8.9

GPC Cleanup: (Y/N) N

Analysis Batch No.: 306695

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
309-00-2	Aldrin	ND		2.8	0.35
319-84-6	alpha-BHC	ND		1.9	0.15
319-85-7	beta-BHC	ND		4.6	0.23
319-86-8	delta-BHC	ND		2.8	0.26
58-89-9	gamma-BHC (Lindane)	ND		1.9	0.70
72-54-8	4,4'-DDD	ND		1.9	0.21
72-55-9	4,4'-DDE	ND		1.9	0.34
50-29-3	4,4'-DDT	ND		1.9	0.34
60-57-1	Dieldrin	ND		1.9	0.32
959-98-8	Endosulfan I	ND		1.9	0.32
33213-65-9	Endosulfan II	ND		1.9	0.24
1031-07-8	Endosulfan sulfate	ND		1.9	0.26
72-20-8	Endrin	ND		1.9	0.44
7421-93-4	Endrin aldehyde	ND		1.9	4.5
76-44-8	Heptachlor	ND		2.8	0.18
1024-57-3	Heptachlor epoxide	ND		2.8	0.28
72-43-5	Methoxychlor	ND		9.3	0.34
53494-70-5	Endrin ketone	ND		1.9	0.39
8001-35-2	Toxaphene	ND		93	23
5103-71-9	cis-Chlordane	ND		1.9	0.70
5103-74-2	trans-Chlordane	ND		2.8	0.30

CAS NO.	SURROGATE	%REC	Q	LIMITS
877-09-8	Tetrachloro-m-xylene	179		50-123
2051-24-3	DCB Decachlorobiphenyl	62		36-136

FORM I  
PESTICIDES ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87601-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070003 Lab Sample ID: 580-87601-3  
 Matrix: Solid Lab File ID: 45F072619a027.D  
 Analysis Method: 8081B Date Collected: 07/10/2019 10:15  
 Extraction Method: 3546 Date Extracted: 07/19/2019 13:42  
 Sample wt/vol: 10.048(g) Date Analyzed: 07/27/2019 04:25  
 Con. Extract Vol.: 10(mL) Dilution Factor: 1  
 Injection Volume: 1(uL) GC Column: ZB-CLPest-1 ID: 0.25(mm)  
 % Moisture: 10.6 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 306695 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
309-00-2	Aldrin	ND		3.3	0.42
319-84-6	alpha-BHC	ND		2.2	0.18
319-85-7	beta-BHC	ND		5.6	0.28
319-86-8	delta-BHC	ND		3.3	0.31
58-89-9	gamma-BHC (Lindane)	ND		2.2	0.84
72-54-8	4,4'-DDD	ND		2.2	0.26
72-55-9	4,4'-DDE	ND		2.2	0.41
50-29-3	4,4'-DDT	ND		2.2	0.41
60-57-1	Dieldrin	ND		2.2	0.39
959-98-8	Endosulfan I	ND		2.2	0.38
33213-65-9	Endosulfan II	ND		2.2	0.29
1031-07-8	Endosulfan sulfate	ND		2.2	0.31
72-20-8	Endrin	ND		2.2	0.52
7421-93-4	Endrin aldehyde	ND		22	5.3
76-44-8	Heptachlor	ND		3.3	0.21
1024-57-3	Heptachlor epoxide	ND		3.3	0.33
72-43-5	Methoxychlor	ND		11	0.41
53494-70-5	Endrin ketone	ND		2.2	0.47
8001-35-2	Toxaphene	ND		110	28
5103-71-9	cis-Chlordane	ND		2.2	0.84
5103-74-2	trans-Chlordane	ND		3.3	0.36

CAS NO.	SURROGATE	%REC	Q	LIMITS
877-09-8	Tetrachloro-m-xylene	55		50-123
2051-24-3	DCB Decachlorobiphenyl	104		36-136

*MW 8/4/19*



FORM I  
PESTICIDES ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87601-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070004

Lab Sample ID: 580-87601-4

Matrix: Solid

Lab File ID: 45F072619a028.D

Analysis Method: 8081B

Date Collected: 07/10/2019 10:20

Extraction Method: 3546

Date Extracted: 07/19/2019 13:42

Sample wt/vol: 10.565(g)

Date Analyzed: 07/27/2019 04:47

Con. Extract Vol.: 10(mL)

Dilution Factor: 2

Injection Volume: 1(uL)

GC Column: ZB-CLPest-1 ID: 0.25 (mm)

% Moisture: 8.7

GPC Cleanup: (Y/N) N

Analysis Batch No.: 306695

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
309-00-2	Aldrin	ND		6.2	0.79
319-84-6	alpha-BHC	ND		4.1	0.33
319-85-7	beta-BHC	ND		10	0.52
319-86-8	delta-BHC	ND		6.2	0.58
58-89-9	gamma-BHC (Lindane)	ND		4.1	1.6
72-54-8	4,4'-DDD	ND		4.1	0.48
72-55-9	4,4'-DDE	ND		4.1	0.77
50-29-3	4,4'-DDT	ND		4.1	0.77
60-57-1	Dieldrin	ND		4.1	0.73
959-98-8	Endosulfan I	ND		4.1	0.71
33213-65-9	Endosulfan II	ND		4.1	0.54
1031-07-8	Endosulfan sulfate	ND		4.1	0.58
72-20-8	Endrin	ND		4.1	0.97
7421-93-4	Endrin aldehyde	ND		41	10
76-44-8	Heptachlor	ND		6.2	0.39
1024-57-3	Heptachlor epoxide	ND		6.2	0.62
72-43-5	Methoxychlor	ND		21	0.77
53494-70-5	Endrin ketone	ND		4.1	0.87
8001-35-2	Toxaphene	ND		210	52
5103-71-9	cis-Chlordane	ND		4.1	1.6
5103-74-2	trans-Chlordane	ND		6.2	0.66

CAS NO.	SURROGATE	%REC	Q	LIMITS
877-09-8	Tetrachloro-m-xylene	47	<i>nu</i>	50-123
2051-24-3	DCB Decachlorobiphenyl	63		36-136

*nu 8/14/19*

FORM I  
PCBS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87601-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070001 Lab Sample ID: 580-87601-1  
 Matrix: Solid Lab File ID: 35F072619a040.d  
 Analysis Method: 8082A Date Collected: 07/10/2019 10:00  
 Extraction Method: 3546 Date Extracted: 07/19/2019 13:42  
 Sample wt/vol: 10.769(g) Date Analyzed: 07/27/2019 02:21  
 Con. Extract Vol.: 10(mL) Dilution Factor: 1  
 Injection Volume: 1(uL) GC Column: ZB-CLPest-1 ID: 0.25(mm)  
 % Moisture: 9.8 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 306798 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
12674-11-2	PCB-1016	ND		0.021	0.0076
11104-28-2	PCB-1221	ND		0.021	0.0043
11141-16-5	PCB-1232	ND		0.021	0.0050
53469-21-9	PCB-1242	ND		0.021	0.0036
12672-29-6	PCB-1248	ND		0.021	0.0030
11097-69-1	PCB-1254	ND		0.021	0.0038

CAS NO.	SURROGATE	%REC	Q	LIMITS
2051-24-3	DCB Decachlorobiphenyl	93		39-142
877-09-8	Tetrachloro-m-xylene	112		35-129

*MW 8-14-19*

FORM I  
PCBS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87601-1  
SDG No.: \_\_\_\_\_  
Client Sample ID: 19070001 Lab Sample ID: 580-87601-1  
Matrix: Solid Lab File ID: 35F072619a040.d  
Analysis Method: 8082A Date Collected: 07/10/2019 10:00  
Extraction Method: 3546 Date Extracted: 07/19/2019 13:42  
Sample wt/vol: 10.769(g) Date Analyzed: 07/27/2019 02:21  
Con. Extract Vol.: 10 (mL) Dilution Factor: 1  
Injection Volume: 1 (uL) GC Column: ZB-CLPest-2 ID: 0.25 (mm)  
% Moisture: 9.8 GPC Cleanup: (Y/N) N  
Analysis Batch No.: 306798 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
11096-82-5	PCB-1260	0.011	J <i>[Signature]</i>	0.021	0.0076

*[Signature]* 8/14/19

FORM I  
PCBS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87601-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070002 Lab Sample ID: 580-87601-2  
 Matrix: Solid Lab File ID: 35F072619a041.d  
 Analysis Method: 8082A Date Collected: 07/10/2019 10:00  
 Extraction Method: 3546 Date Extracted: 07/19/2019 13:42  
 Sample wt/vol: 11.836(g) Date Analyzed: 07/27/2019 02:38  
 Con. Extract Vol.: 10(mL) Dilution Factor: 1  
 Injection Volume: 1(uL) GC Column: ZB-CLPest-1 ID: 0.25(mm)  
 % Moisture: 8.9 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 306798 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
12674-11-2	PCB-1016	ND		0.019	0.0069
11104-28-2	PCB-1221	ND		0.019	0.0039
11141-16-5	PCB-1232	ND		0.019	0.0045
53469-21-9	PCB-1242	ND		0.019	0.0032
12672-29-6	PCB-1248	ND		0.019	0.0027
11097-69-1	PCB-1254	ND		0.019	0.0034
11096-82-5	PCB-1260	ND		0.019	0.0069

CAS NO.	SURROGATE	%REC	Q	LIMITS
2051-24-3	DCB Decachlorobiphenyl	69		39-142
877-09-8	Tetrachloro-m-xylene	84		35-129

*mm 8/14/19*

FORM I  
PCBS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87601-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070003 Lab Sample ID: 580-87601-3  
 Matrix: Solid Lab File ID: 35F072619a042.d  
 Analysis Method: 8082A Date Collected: 07/10/2019 10:15  
 Extraction Method: 3546 Date Extracted: 07/19/2019 13:42  
 Sample wt/vol: 10.048(g) Date Analyzed: 07/27/2019 02:55  
 Con. Extract Vol.: 10(mL) Dilution Factor: 1  
 Injection Volume: 1(uL) GC Column: ZB-CLPest-1 ID: 0.25(mm)  
 % Moisture: 10.6 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 306798 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
12674-11-2	PCB-1016	ND		0.022	0.0082
11104-28-2	PCB-1221	ND		0.022	0.0047
11141-16-5	PCB-1232	ND		0.022	0.0055
53469-21-9	PCB-1242	ND		0.022	0.0039
12672-29-6	PCB-1248	ND		0.022	0.0032
11097-69-1	PCB-1254	ND		0.022	0.0041

CAS NO.	SURROGATE	%REC	Q	LIMITS
2051-24-3	DCB Decachlorobiphenyl	70		39-142
877-09-8	Tetrachloro-m-xylene	71		35-129

*Handwritten signature and date: 8/4/19*

FORM I  
PCBS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87601-1  
SDG No.: \_\_\_\_\_  
Client Sample ID: 19070003 Lab Sample ID: 580-87601-3  
Matrix: Solid Lab File ID: 35F072619a042.d  
Analysis Method: 8082A Date Collected: 07/10/2019 10:15  
Extraction Method: 3546 Date Extracted: 07/19/2019 13:42  
Sample wt/vol: 10.048(g) Date Analyzed: 07/27/2019 02:55  
Con. Extract Vol.: 10(mL) Dilution Factor: 1  
Injection Volume: 1(uL) GC Column: ZB-CLPest-2 ID: 0.25(mm)  
% Moisture: 10.6 GPC Cleanup: (Y/N) N  
Analysis Batch No.: 306798 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
11096-82-5	PCB-1260	0.0084	J <i>1/2</i>	0.022	0.0082

*mw 8/4/19*

FORM I  
PCBS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87601-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070004 Lab Sample ID: 580-87601-4  
 Matrix: Solid Lab File ID: 35F072619a043.d  
 Analysis Method: 8082A Date Collected: 07/10/2019 10:20  
 Extraction Method: 3546 Date Extracted: 07/19/2019 13:42  
 Sample wt/vol: 10.565(g) Date Analyzed: 07/27/2019 03:12  
 Con. Extract Vol.: 10(mL) Dilution Factor: 1  
 Injection Volume: 1(uL) GC Column: ZB-CLPest-1 ID: 0.25(mm)  
 % Moisture: 8.7 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 306798 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
12674-11-2	PCB-1016	ND		0.021	0.0077
11104-28-2	PCB-1221	ND		0.021	0.0044
11141-16-5	PCB-1232	ND		0.021	0.0051
53469-21-9	PCB-1242	ND		0.021	0.0036
12672-29-6	PCB-1248	ND		0.021	0.0030
11096-82-5	PCB-1260	ND		0.021	0.0077

CAS NO.	SURROGATE	%REC	Q	LIMITS
2051-24-3	DCB Decachlorobiphenyl	75		39-142
877-09-8	Tetrachloro-m-xylene	86		35-129

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8/4-19

FORM I  
PCBS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87601-1  
SDG No.: \_\_\_\_\_  
Client Sample ID: 19070004 Lab Sample ID: 580-87601-4  
Matrix: Solid Lab File ID: 35F072919a042.d  
Analysis Method: 8082A Date Collected: 07/10/2019 10:20  
Extraction Method: 3546 Date Extracted: 07/19/2019 13:42  
Sample wt/vol: 10.565(g) Date Analyzed: 07/29/2019 23:18  
Con. Extract Vol.: 10 (mL) Dilution Factor: 5  
Injection Volume: 1 (uL) GC Column: ZB-CLPest-2 ID: 0.25 (mm)  
% Moisture: 8.7 GPC Cleanup: (Y/N) N  
Analysis Batch No.: 306960 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
11097-69-1	PCB-1254	0.39	<i>JK</i> <i>mu</i>	0.10	0.019

*mu 8/4/19*





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### MEMORANDUM

DATE: August 15, 2019

TO: Seth Wing, START-IV Project Manager, E & E, Seattle, Washington

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington *MW*

SUBJ: **Organic Data Quality Assurance Review, May Creek Removal Action Site, Renton, Washington**

REF: TO: TO-68HE0718F0470 PAN: 1004530.0470.001.01

The data quality assurance review of 5 solid samples collected from the May Creek Removal Action site located in Renton, Washington, has been completed. Analysis for Extended Gasoline Range Total Petroleum Hydrocarbons (Ecology Method NWTPH-Gx) analyses was performed by Test America, Inc., Tacoma, Washington. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Manual Process (S2B/4VM).

The samples were numbered: 19070001 19070002 19070003 19070004 19070603

#### Data Qualifications:

##### **1. Sample Holding Times: Satisfactory.**

The samples were received at 10.5°C, exceeding the QC limits of 4°C ± 2°C; associated positive results and sample quantitation limits were qualified as estimated quantities with a low bias (JL or UJL). The samples were collected on July 10, 2019, were received at the laboratory within 48 hours of collection, and were analyzed by July 25, 2019, therefore meeting QC criteria of less than 14 days between collection and analysis for soil samples except sample 19070603; the associated sample quantitation limit was qualified as an estimated quantity with a low bias (UJL).

##### **2. Initial Calibration: Acceptable.**

Calculations were verified as correct. All relative percent differences (RPDs) were less than or equal to the laboratory control limits.

##### **3. Continuing Calibration: Acceptable.**

Calculations were verified as correct. All percent differences were less than or equal to the laboratory control limits.

##### **4. Blanks: Acceptable.**

A method blank was analyzed at the required frequency of every 12 hours for each matrix, preparation technique, and analysis system. Gasoline-range TPHs were not detected in the method blank

or in the trip blank.

**5. System Monitoring Compounds (SMC): Acceptable.**

All recoveries of the SMCs were within QC limits.

**6. Blank Spikes (BS) and BS Duplicate (BSD) Analyses: Acceptable.**

BS and BSD results were within laboratory QC limits.

**7. Duplicates: Acceptable.**

All duplicate and spike duplicate results were within laboratory QC limits.

**8. Quantitation and Quantitation Limits: Acceptable.**

Sample quantitation and sample quantitation limits were correctly calculated.

**9. Laboratory Contact: Not Required.**

No laboratory contact was required.

**10. Overall Assessment of Data for Use**

A total of 5 results were validated in this data memorandum. No sample results were qualified as estimated quantities (J) based on duplicate precision outliers, spike accuracy outliers, or incorrect sample containers. A total of four sample results were qualified as estimated quantities based on sample temperature outliers and/or holding time outliers. No sample results were rejected (R).

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the analytical method(s), the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, and/or the Office of Emergency and Remedial Response Publication "National Functional Guidelines for Superfund Organic Methods Data Review, January 2017". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

H - The sample result is biased high.

J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

K - The bias of the sample is not known.

L - The sample result is biased low.

- Q - Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.
- R - The data is rejected and unusable. The analyte may or may not be present in the sample.
- U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.

FORM I  
GC VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87601-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070001 Lab Sample ID: 580-87601-1  
 Matrix: Solid Lab File ID: 07161919.D  
 Analysis Method: NWTPH-Gx Date Collected: 07/10/2019 10:00  
 Sample wt/vol: 12.961(g) Date Analyzed: 07/16/2019 19:13  
 Soil Aliquot Vol: 1.075 (mL) Dilution Factor: 1  
 Soil Extract Vol.: 10 (mL) GC Column: RTX-VRX ID: 0.45 (mm)  
 % Moisture: 9.8 Level: (low/med) Medium  
 Analysis Batch No.: 305786 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00228	Gasoline	7.1	<i>SL</i>	4.8	2.2

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	98		50-150

*mw 8/4/19*

FORM I  
GC VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87601-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070002 Lab Sample ID: 580-87601-2  
 Matrix: Solid Lab File ID: 07161920.D  
 Analysis Method: NWTPH-Gx Date Collected: 07/10/2019 10:00  
 Sample wt/vol: 14.258(g) Date Analyzed: 07/16/2019 19:43  
 Soil Aliquot Vol: 1.075 (mL) Dilution Factor: 1  
 Soil Extract Vol.: 10(mL) GC Column: RTX-VRX ID: 0.45(mm)  
 % Moisture: 8.9 Level: (low/med) Medium  
 Analysis Batch No.: 305786 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00228	Gasoline	ND <i>m</i>		4.3	<i>HL</i> 2.0

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	99		50-150

*mm 8/14/19*

FORM I  
GC VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87601-1  
SDG No.: \_\_\_\_\_  
Client Sample ID: 19070003 Lab Sample ID: 580-87601-3  
Matrix: Solid Lab File ID: 07161921.D  
Analysis Method: NWTPH-Gx Date Collected: 07/10/2019 10:15  
Sample wt/vol: 19.285(g) Date Analyzed: 07/16/2019 20:13  
Soil Aliquot Vol: 1.075 (mL) Dilution Factor: 1  
Soil Extract Vol.: 10 (mL) GC Column: RTX-VRX ID: 0.45 (mm)  
% Moisture: 10.6 Level: (low/med) Medium  
Analysis Batch No.: 305786 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00228	Gasoline	2.3	J <i>Q</i>	3.5	1.6

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	99		50-150

*MW 8/4/19*

FORM I  
GC VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87601-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070004 Lab Sample ID: 580-87601-4  
 Matrix: Solid Lab File ID: 07161922.D  
 Analysis Method: NWTPH-Gx Date Collected: 07/10/2019 10:20  
 Sample wt/vol: 11.833(g) Date Analyzed: 07/16/2019 20:44  
 Soil Aliquot Vol: 1.075 (mL) Dilution Factor: 1  
 Soil Extract Vol.: 10(mL) GC Column: RTX-VRX ID: 0.45 (mm)  
 % Moisture: 8.7 Level: (low/med) Medium  
 Analysis Batch No.: 305786 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00228	Gasoline	94	JL	5.1	2.3

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	122		50-150

*mw 8/14/19*

FORM I  
GC VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87601-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070603 Lab Sample ID: 580-87601-5  
 Matrix: Solid Lab File ID: 07251920.D  
 Analysis Method: NWTPH-Gx Date Collected: 07/10/2019 17:15  
 Sample wt/vol: 10(g) Date Analyzed: 07/25/2019 19:26  
 Soil Aliquot Vol: 1.075 (mL) Dilution Factor: 1  
 Soil Extract Vol.: 10(mL) GC Column: RTX-VRX ID: 0.45 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Medium  
 Analysis Batch No.: 306688 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00228	Gasoline	ND	<i>[initials]</i>	5.0	<i>[initials]</i> 2.3

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	95		50-150

*mw 8/14/19*





DATE: August 15, 2019

TO: Seth Wing, START-IV Project Manager, E & E, Seattle, WA

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington *MW*

SUBJ: **Organic Data Quality Assurance Review, May Creek Removal Action Site, Renton, Washington**

REF: TO: TO-68HE0718F0470 PAN: 1004530.0470.001.01

The data quality assurance review of 5 solid samples collected from the May Creek Removal Action site in Renton, Washington, has been completed. Volatile Organic Compound (VOC) analysis (EPA Method 8260) was performed by Test America, Inc., Tacoma, Washington. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Manual Process (S2B/4VM).

The samples were numbered:

19070001      19070002      19070003      19070004      19070603

**Data Qualifications:**

**1. Sample Holding Times: Satisfactory.**

The samples were received at 10.5°C, exceeding the QC limits of 4°C ± 2°C; associated positive results and sample quantitation limits were qualified as estimated quantities with a low bias (JL or UJL). The samples were collected on July 10, 2019, were received on July 11, 2019, and were analyzed by July 24, 2019, therefore meeting QC criteria of less than 14 days between collection and analysis for soil and preserved water samples. Samples 19070001 through 19070004 were not frozen in the laboratory within 48 hours of collection; therefore, associated positive results and sample quantitation limits were qualified as estimated quantities with a low bias.

**2. Tuning: Acceptable.**

Tuning was performed at the beginning of each 12-hour analysis sequence. All results were within QC limits.

**3. Initial Calibration: Acceptable.**

All average Relative Response Factors (RRFs) were within the QC limits. All Relative Standard Deviations (RSDs) and/or correlation coefficients were within the QC limits.

**4. Continuing Calibration: Satisfactory.**

All RRFs were within the QC limits. Applicable percent differences were within QC limits except one high recovery outlier; no actions were taken as this analyte was not detected in the samples.

**5. Blanks: Satisfactory.**

A method blank was analyzed for each 20 sample batch per matrix. There were no detections in any method blank. There were no detections in the trip blank except chloroform; no actions were taken as this analyte was not detected in the other samples.

**6. System Monitoring Compounds (SMCs): Acceptable.**

All SMC recoveries were within QC limits.

**7. Blank Spike (BS)/BS Duplicate (BSD) Analysis: Satisfactory.**

BS and BSD analyses were performed per SDG or per matrix per concentration level, whichever was more frequent. All recoveries were within QC limits except several high outliers; no actions were taken as these analytes were not detected in the associated samples.

**8. Spike Duplicate Analysis: Acceptable.**

Spike duplicate analyses were performed per SDG or per matrix per concentration level, whichever was more frequent. All spike duplicate results were within QC limits.

**9. Internal Standards: Acceptable.**

All internal standards were within  $\pm 30$  seconds of the continuing calibration internal standard retention times. All area counts were within 50 % to 200 % of the continuing calibration area counts.

**10. Overall Assessment of Data for Use**

Samples 19070001 through 19070004 had a higher sample weight than the method specifies; associated sample results were qualified as estimated quantities with an unknown bias (JK or UJK).

A total of 300 results were validated in this data memorandum. No sample results were qualified as estimated quantities (J) based on duplicate precision outliers, spike accuracy outliers, or incorrect sample containers. A total of 300 results were qualified as estimated quantities based on holding time outliers and/or sample temperature outliers. No sample results were rejected (R).

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the analytical method(s), the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, and/or the Office of Emergency and Remedial Response Publication "National Functional Guidelines for Superfund Organic Methods Data Review, January 2017". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

H - The sample result is biased high.

J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

K - The bias of the sample is not known.

L - The sample result is biased low.

- N - The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification".
- NJ - The analyte has been "tentatively identified" or "presumptively" as present and the associated numerical value is the estimated concentration in the sample.
- Q - Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.
- R - The data is rejected and unusable. The analyte may or may not be present in the sample.
- U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87601-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070001

Lab Sample ID: 580-87601-1

Matrix: Solid

Lab File ID: 072319\_0042.D

Analysis Method: 8260C

Date Collected: 07/10/2019 10:00

Sample wt/vol: 6.633(g)

Date Analyzed: 07/24/2019 02:59

Soil Aliquot Vol: \_\_\_\_\_

Dilution Factor: 1

Soil Extract Vol.: \_\_\_\_\_

GC Column: DB-VRX ID: 0.25 (mm)

% Moisture: 9.8

Level: (low/med) Low

Analysis Batch No.: 306461

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-71-8	Dichlorodifluoromethane	ND	H	1.7	0.41
74-87-3	Chloromethane	ND	H	4.2	0.78
75-01-4	Vinyl chloride	ND	H	1.7	0.25
74-83-9	Bromomethane	ND	H	0.84	0.18
75-00-3	Chloroethane	ND	H	8.4	1.3
75-69-4	Trichlorofluoromethane	ND	H	1.7	0.25
75-35-4	1,1-Dichloroethene	ND	H	4.2	0.92
75-09-2	Methylene Chloride	ND	H	33	8.3
156-60-5	trans-1,2-Dichloroethene	ND	H	1.7	0.33
75-34-3	1,1-Dichloroethane	ND	H	0.84	0.16
594-20-7	2,2-Dichloropropane	ND	H	4.2	0.75
156-59-2	cis-1,2-Dichloroethene	ND	H	2.5	0.50
74-97-5	Bromochloromethane	ND	H	1.7	0.21
67-66-3	Chloroform	ND	H	1.7	0.25
71-55-6	1,1,1-Trichloroethane	ND	H	1.7	0.25
56-23-5	Carbon tetrachloride	ND	H	1.7	0.25
563-58-6	1,1-Dichloropropene	ND	H	1.7	0.25
71-43-2	Benzene	ND	H	1.7	0.33
107-06-2	1,2-Dichloroethane	ND	H	0.84	0.17
79-01-6	Trichloroethene	ND	H	1.7	0.25
78-87-5	1,2-Dichloropropane	ND	H	1.7	0.33
74-95-3	Dibromomethane	ND	H	0.84	0.14
75-27-4	Bromodichloromethane	ND	H	0.84	0.15
10061-01-5	cis-1,3-Dichloropropene	ND	H	0.84	0.17
108-88-3	Toluene	ND	H	8.4	1.1
10061-02-6	trans-1,3-Dichloropropene	ND	* H	8.4	1.2
79-00-5	1,1,2-Trichloroethane	ND	* H	1.7	0.21
127-18-4	Tetrachloroethene	ND	H	1.7	0.33
142-28-9	1,3-Dichloropropane	ND	* H	1.7	0.19
124-48-1	Dibromochloromethane	ND	H *	1.3	0.23
106-93-4	1,2-Dibromoethane	ND	H *	0.84	0.17
108-90-7	Chlorobenzene	ND	H	1.7	0.21
100-41-4	Ethylbenzene	ND	H	1.7	0.34
630-20-6	1,1,1,2-Tetrachloroethane	ND	H	2.5	0.49
79-34-5	1,1,2,2-Tetrachloroethane	ND	* H	3.3	0.75
179601-23-1	m-Xylene & p-Xylene	ND	H	8.4	1.4

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87601-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070001

Lab Sample ID: 580-87601-1

Matrix: Solid

Lab File ID: 072319\_0042.D

Analysis Method: 8260C

Date Collected: 07/10/2019 10:00

Sample wt/vol: 6.633(g)

Date Analyzed: 07/24/2019 02:59

Soil Aliquot Vol: \_\_\_\_\_

Dilution Factor: 1

Soil Extract Vol.: \_\_\_\_\_

GC Column: DB-VRX ID: 0.25 (mm)

% Moisture: 9.8

Level: (low/med) Low

Analysis Batch No.: 306461

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
95-47-6	o-Xylene	ND	H	4.2	0.77
100-42-5	Styrene	ND	H	2.5	0.62
75-25-2	Bromoform	ND	* H	4.2	0.70
98-82-8	Isopropylbenzene	ND	H	1.7	0.38
108-86-1	Bromobenzene	ND	* H	8.4	0.84
103-65-1	N-Propylbenzene	ND	H	4.2	0.64
96-18-4	1,2,3-Trichloropropane	ND	* H	4.2	0.84
95-49-8	2-Chlorotoluene	ND	H	4.2	0.78
108-67-8	1,3,5-Trimethylbenzene	ND	H	4.2	0.68
106-43-4	4-Chlorotoluene	ND	* H	4.2	0.84
98-06-6	t-Butylbenzene	ND	H	2.5	0.55
95-63-6	1,2,4-Trimethylbenzene	ND	H	4.2	1.0
135-98-8	sec-Butylbenzene	ND	H	2.5	0.56
541-73-1	1,3-Dichlorobenzene	ND	* H	4.2	0.92
99-87-6	4-Isopropyltoluene	ND	H	1.7	0.33
106-46-7	1,4-Dichlorobenzene	ND	* H	4.2	0.82
104-51-8	n-Butylbenzene	ND	H	2.5	0.53
95-50-1	1,2-Dichlorobenzene	ND	H	8.4	1.1
96-12-8	1,2-Dibromo-3-Chloropropane	ND	* H	8.4	1.3
120-82-1	1,2,4-Trichlorobenzene	ND	H	1.7	0.35
87-61-6	1,2,3-Trichlorobenzene	ND	H	2.5	0.50
87-68-3	Hexachlorobutadiene	ND	H	2.5	0.50
91-20-3	Naphthalene	ND	H	8.4	1.5
1634-04-4	Methyl tert-butyl ether	ND	H	1.7	0.25

CAS NO.	SURROGATE	%REC	Q	LIMITS
2037-26-5	Toluene-d8 (Surr)	99		80-120
460-00-4	4-Bromofluorobenzene (Surr)	101		80-120
1868-53-7	Dibromofluoromethane (Surr)	104		80-120
98-08-8	Trifluorotoluene (Surr)	95		80-120
17060-07-0	1,2-Dichloroethane-d4 (Surr)	117		80-121

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87601-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070002

Lab Sample ID: 580-87601-2

Matrix: Solid

Lab File ID: 072319\_0043.D

Analysis Method: 8260C

Date Collected: 07/10/2019 10:00

Sample wt/vol: 7.387(g)

Date Analyzed: 07/24/2019 03:24

Soil Aliquot Vol: \_\_\_\_\_

Dilution Factor: 1

Soil Extract Vol.: \_\_\_\_\_

GC Column: DB-VRX ID: 0.25 (mm)

% Moisture: 8.9

Level: (low/med) Low

Analysis Batch No.: 306461

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-71-8	Dichlorodifluoromethane	ND	H	1.5	0.36
74-87-3	Chloromethane	ND	H	3.7	0.69
75-01-4	Vinyl chloride	ND	H	1.5	0.22
74-83-9	Bromomethane	ND	H	0.74	0.16
75-00-3	Chloroethane	ND	H	7.4	1.2
75-69-4	Trichlorofluoromethane	ND	H	1.5	0.22
75-35-4	1,1-Dichloroethene	ND	H	3.7	0.82
75-09-2	Methylene Chloride	ND	H	30	7.4
156-60-5	trans-1,2-Dichloroethene	ND	H	1.5	0.30
75-34-3	1,1-Dichloroethane	ND	H	0.74	0.14
594-20-7	2,2-Dichloropropane	ND	H	3.7	0.67
156-59-2	cis-1,2-Dichloroethene	ND	H	2.2	0.45
74-97-5	Bromochloromethane	ND	H	1.5	0.19
67-66-3	Chloroform	ND	H	1.5	0.22
71-55-6	1,1,1-Trichloroethane	ND	H	1.5	0.22
56-23-5	Carbon tetrachloride	ND	H	1.5	0.22
563-58-6	1,1-Dichloropropene	ND	H	1.5	0.22
71-43-2	Benzene	ND	H	1.5	0.29
107-06-2	1,2-Dichloroethane	ND	H	0.74	0.15
79-01-6	Trichloroethene	ND	H	1.5	0.22
78-87-5	1,2-Dichloropropane	ND	H	1.5	0.30
74-95-3	Dibromomethane	ND	H	0.74	0.13
75-27-4	Bromodichloromethane	ND	H	0.74	0.13
10061-01-5	cis-1,3-Dichloropropene	ND	H	0.74	0.15
108-88-3	Toluene	ND	H	7.4	0.97
10061-02-6	trans-1,3-Dichloropropene	ND	* H	7.4	1.0
79-00-5	1,1,2-Trichloroethane	ND	* H	1.5	0.19
127-18-4	Tetrachloroethene	ND	H	1.5	0.30
142-28-9	1,3-Dichloropropane	ND	* H	1.5	0.17
124-48-1	Dibromochloromethane	ND	H *	1.1	0.20
106-93-4	1,2-Dibromoethane	ND	H *	0.74	0.15
108-90-7	Chlorobenzene	ND	H	1.5	0.19
100-41-4	Ethylbenzene	ND	H	1.5	0.30
630-20-6	1,1,1,2-Tetrachloroethane	ND	H	2.2	0.44
79-34-5	1,1,2,2-Tetrachloroethane	ND	* H	3.0	0.67
179601-23-1	m-Xylene & p-Xylene	ND	H	7.4	1.3

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87601-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070002 Lab Sample ID: 580-87601-2  
 Matrix: Solid Lab File ID: 072319\_0043.D  
 Analysis Method: 8260C Date Collected: 07/10/2019 10:00  
 Sample wt/vol: 7.387(g) Date Analyzed: 07/24/2019 03:24  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: DB-VRX ID: 0.25 (mm)  
 % Moisture: 8.9 Level: (low/med) Low  
 Analysis Batch No.: 306461 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
95-47-6	o-Xylene	ND	H	3.7	0.68
100-42-5	Styrene	ND	H	2.2	0.55
75-25-2	Bromoform	ND	* H	3.7	0.62
98-82-8	Isopropylbenzene	ND	H	1.5	0.34
108-86-1	Bromobenzene	ND	* H	7.4	0.74
103-65-1	N-Propylbenzene	ND	H	3.7	0.56
96-18-4	1,2,3-Trichloropropane	ND	* H	3.7	0.74
95-49-8	2-Chlorotoluene	ND	H	3.7	0.69
108-67-8	1,3,5-Trimethylbenzene	ND	H	3.7	0.60
106-43-4	4-Chlorotoluene	ND	* H	3.7	0.74
98-06-6	t-Butylbenzene	ND	H	2.2	0.49
95-63-6	1,2,4-Trimethylbenzene	ND	H	3.7	0.89
135-98-8	sec-Butylbenzene	ND	H	2.2	0.50
541-73-1	1,3-Dichlorobenzene	ND	* H	3.7	0.82
99-87-6	4-Isopropyltoluene	ND	H	1.5	0.30
106-46-7	1,4-Dichlorobenzene	ND	* H	3.7	0.73
104-51-8	n-Butylbenzene	ND	H	2.2	0.47
95-50-1	1,2-Dichlorobenzene	ND	H	7.4	0.97
96-12-8	1,2-Dibromo-3-Chloropropane	ND	* H	7.4	1.2
120-82-1	1,2,4-Trichlorobenzene	ND	H	1.5	0.31
87-61-6	1,2,3-Trichlorobenzene	ND	H	2.2	0.45
87-68-3	Hexachlorobutadiene	ND	H	2.2	0.45
91-20-3	Naphthalene	ND	H	7.4	1.3
1634-04-4	Methyl tert-butyl ether	ND	H	1.5	0.22

CAS NO.	SURROGATE	%REC	Q	LIMITS
2037-26-5	Toluene-d8 (Surr)	99		80-120
460-00-4	4-Bromofluorobenzene (Surr)	103		80-120
1868-53-7	Dibromofluoromethane (Surr)	103		80-120
98-08-8	Trifluorotoluene (Surr)	93		80-120
17060-07-0	1,2-Dichloroethane-d4 (Surr)	117		80-121

*mm 8/14/19*

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87601-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070003

Lab Sample ID: 580-87601-3

Matrix: Solid

Lab File ID: 072319\_0044.D

Analysis Method: 8260C

Date Collected: 07/10/2019 10:15

Sample wt/vol: 6.075(g)

Date Analyzed: 07/24/2019 03:49

Soil Aliquot Vol: \_\_\_\_\_

Dilution Factor: 1

Soil Extract Vol.: \_\_\_\_\_

GC Column: DB-VRX ID: 0.25 (mm)

% Moisture: 10.6

Level: (low/med) Low

Analysis Batch No.: 306461

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-71-8	Dichlorodifluoromethane	ND	H	1.8	0.45
74-87-3	Chloromethane	ND	H	4.6	0.86
75-01-4	Vinyl chloride	ND	H	1.8	0.28
74-83-9	Bromomethane	ND	H	0.92	0.19
75-00-3	Chloroethane	ND	H	9.2	1.5
75-69-4	Trichlorofluoromethane	ND	H	1.8	0.28
75-35-4	1,1-Dichloroethene	ND	H	4.6	1.0
75-09-2	Methylene Chloride	ND	H	37	9.1
156-60-5	trans-1,2-Dichloroethene	ND	H	1.8	0.37
75-34-3	1,1-Dichloroethane	ND	H	0.92	0.17
594-20-7	2,2-Dichloropropane	ND	H	4.6	0.83
156-59-2	cis-1,2-Dichloroethene	ND	H	2.8	0.55
74-97-5	Bromochloromethane	ND	H	1.8	0.23
67-66-3	Chloroform	ND	H	1.8	0.28
71-55-6	1,1,1-Trichloroethane	ND	H	1.8	0.28
56-23-5	Carbon tetrachloride	ND	H	1.8	0.28
563-58-6	1,1-Dichloropropene	ND	H	1.8	0.28
71-43-2	Benzene	ND	H	1.8	0.36
107-06-2	1,2-Dichloroethane	ND	H	0.92	0.18
79-01-6	Trichloroethene	ND	H	1.8	0.28
78-87-5	1,2-Dichloropropane	ND	H	1.8	0.37
74-95-3	Dibromomethane	ND	H	0.92	0.16
75-27-4	Bromodichloromethane	ND	H	0.92	0.17
10061-01-5	cis-1,3-Dichloropropene	ND	H	0.92	0.18
108-88-3	Toluene	ND	H	9.2	1.2
10061-02-6	trans-1,3-Dichloropropene	ND	* H	9.2	1.3
79-00-5	1,1,2-Trichloroethane	ND	* H	1.8	0.23
127-18-4	Tetrachloroethene	ND	H	1.8	0.37
142-28-9	1,3-Dichloropropane	ND	* H	1.8	0.21
124-48-1	Dibromochloromethane	ND	H *	1.4	0.25
106-93-4	1,2-Dibromoethane	ND	H *	0.92	0.18
108-90-7	Chlorobenzene	ND	H	1.8	0.23
100-41-4	Ethylbenzene	ND	H	1.8	0.38
630-20-6	1,1,1,2-Tetrachloroethane	ND	H	2.8	0.54
79-34-5	1,1,2,2-Tetrachloroethane	ND	* H	3.7	0.83
179601-23-1	m-Xylene & p-Xylene	ND	H	9.2	1.6



FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87601-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070003 Lab Sample ID: 580-87601-3  
 Matrix: Solid Lab File ID: 072319\_0044.D  
 Analysis Method: 8260C Date Collected: 07/10/2019 10:15  
 Sample wt/vol: 6.075(g) Date Analyzed: 07/24/2019 03:49  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: DB-VRX ID: 0.25 (mm)  
 % Moisture: 10.6 Level: (low/med) Low  
 Analysis Batch No.: 306461 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
95-47-6	o-Xylene	ND	H	4.6	0.85
100-42-5	Styrene	ND	H	2.8	0.68
75-25-2	Bromoform	ND	* H	4.6	0.77
98-82-8	Isopropylbenzene	ND	H	1.8	0.42
108-86-1	Bromobenzene	ND	* H	9.2	0.92
103-65-1	N-Propylbenzene	ND	H	4.6	0.70
96-18-4	1,2,3-Trichloropropane	ND	* H	4.6	0.92
95-49-8	2-Chlorotoluene	ND	H	4.6	0.86
108-67-8	1,3,5-Trimethylbenzene	ND	H	4.6	0.75
106-43-4	4-Chlorotoluene	ND	* H	4.6	0.92
98-06-6	t-Butylbenzene	ND	H	2.8	0.61
95-63-6	1,2,4-Trimethylbenzene	ND	H	4.6	1.1
135-98-8	sec-Butylbenzene	ND	H	2.8	0.62
541-73-1	1,3-Dichlorobenzene	ND	* H	4.6	1.0
99-87-6	4-Isopropyltoluene	ND	H	1.8	0.37
106-46-7	1,4-Dichlorobenzene	ND	* H	4.6	0.90
104-51-8	n-Butylbenzene	ND	H	2.8	0.58
95-50-1	1,2-Dichlorobenzene	ND	H	9.2	1.2
96-12-8	1,2-Dibromo-3-Chloropropane	ND	* H	9.2	1.5
120-82-1	1,2,4-Trichlorobenzene	ND	H	1.8	0.39
87-61-6	1,2,3-Trichlorobenzene	ND	H	2.8	0.55
87-68-3	Hexachlorobutadiene	ND	H	2.8	0.55
91-20-3	Naphthalene	ND	H	9.2	1.7
1634-04-4	Methyl tert-butyl ether	ND	H	1.8	0.28

CAS NO.	SURROGATE	%REC	Q	LIMITS
2037-26-5	Toluene-d8 (Surr)	101		80-120
460-00-4	4-Bromofluorobenzene (Surr)	101		80-120
1868-53-7	Dibromofluoromethane (Surr)	104		80-120
98-08-8	Trifluorotoluene (Surr)	94		80-120
17060-07-0	1,2-Dichloroethane-d4 (Surr)	117		80-121

*mw 8/4/19*

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87601-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070004

Lab Sample ID: 580-87601-4

Matrix: Solid

Lab File ID: 072319\_0045.D

Analysis Method: 8260C

Date Collected: 07/10/2019 10:20

Sample wt/vol: 7.301(g)

Date Analyzed: 07/24/2019 04:14

Soil Aliquot Vol: \_\_\_\_\_

Dilution Factor: 1

Soil Extract Vol.: \_\_\_\_\_

GC Column: DB-VRX ID: 0.25 (mm)

% Moisture: 8.7

Level: (low/med) Low

Analysis Batch No.: 306461

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-71-8	Dichlorodifluoromethane	ND	H	1.5	0.37
74-87-3	Chloromethane	ND	H	3.8	0.70
75-01-4	Vinyl chloride	ND	H	1.5	0.23
74-83-9	Bromomethane	ND	H	0.75	0.16
75-00-3	Chloroethane	ND	H	7.5	1.2
75-69-4	Trichlorofluoromethane	ND	H	1.5	0.23
75-35-4	1,1-Dichloroethene	ND	H	3.8	0.83
75-09-2	Methylene Chloride	ND	H	30	7.4
156-60-5	trans-1,2-Dichloroethene	ND	H	1.5	0.30
75-34-3	1,1-Dichloroethane	ND	H	0.75	0.14
594-20-7	2,2-Dichloropropane	ND	H	3.8	0.68
156-59-2	cis-1,2-Dichloroethene	ND	H	2.3	0.45
74-97-5	Bromochloromethane	ND	H	1.5	0.19
67-66-3	Chloroform	ND	H	1.5	0.23
71-55-6	1,1,1-Trichloroethane	ND	H	1.5	0.23
56-23-5	Carbon tetrachloride	ND	H	1.5	0.23
563-58-6	1,1-Dichloropropene	ND	H	1.5	0.23
71-43-2	Benzene	ND	H	1.5	0.29
107-06-2	1,2-Dichloroethane	ND	H	0.75	0.15
79-01-6	Trichloroethene	ND	H	1.5	0.23
78-87-5	1,2-Dichloropropane	ND	H	1.5	0.30
74-95-3	Dibromomethane	ND	H	0.75	0.13
75-27-4	Bromodichloromethane	ND	H	0.75	0.14
10061-01-5	cis-1,3-Dichloropropene	ND	H	0.75	0.15
108-88-3	Toluene	ND	H	7.5	0.98
10061-02-6	trans-1,3-Dichloropropene	ND	* H	7.5	1.1
79-00-5	1,1,2-Trichloroethane	ND	* H	1.5	0.19
127-18-4	Tetrachloroethene	ND	H	1.5	0.30
142-28-9	1,3-Dichloropropane	ND	* H	1.5	0.17
124-48-1	Dibromochloromethane	ND	H *	1.1	0.20
106-93-4	1,2-Dibromoethane	ND	H *	0.75	0.15
108-90-7	Chlorobenzene	ND	H	1.5	0.19
100-41-4	Ethylbenzene	ND	H	1.5	0.31
630-20-6	1,1,1,2-Tetrachloroethane	ND	H	2.3	0.44
79-34-5	1,1,2,2-Tetrachloroethane	ND	* H	3.0	0.68
179601-23-1	m-Xylene & p-Xylene	ND	H	7.5	1.3

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87601-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070004 Lab Sample ID: 580-87601-4  
 Matrix: Solid Lab File ID: 072319\_0045.D  
 Analysis Method: 8260C Date Collected: 07/10/2019 10:20  
 Sample wt/vol: 7.301(g) Date Analyzed: 07/24/2019 04:14  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: DB-VRX ID: 0.25 (mm)  
 % Moisture: 8.7 Level: (low/med) Low  
 Analysis Batch No.: 306461 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
95-47-6	o-Xylene	ND	H	3.8	0.69
100-42-5	Styrene	ND	H	2.3	0.56
75-25-2	Bromoform	ND	* H	3.8	0.63
98-82-8	Isopropylbenzene	ND	H	1.5	0.35
108-86-1	Bromobenzene	ND	* H	7.5	0.75
103-65-1	N-Propylbenzene	ND	H	3.8	0.57
96-18-4	1,2,3-Trichloropropane	ND	* H	3.8	0.75
95-49-8	2-Chlorotoluene	ND	H	3.8	0.70
108-67-8	1,3,5-Trimethylbenzene	ND	H	3.8	0.61
106-43-4	4-Chlorotoluene	ND	* H	3.8	0.75
98-06-6	t-Butylbenzene	ND	H	2.3	0.50
95-63-6	1,2,4-Trimethylbenzene	ND	H	3.8	0.90
135-98-8	sec-Butylbenzene	ND	H	2.3	0.50
541-73-1	1,3-Dichlorobenzene	ND	* H	3.8	0.83
99-87-6	4-Isopropyltoluene	ND	H	1.5	0.30
106-46-7	1,4-Dichlorobenzene	ND	* H	3.8	0.74
104-51-8	n-Butylbenzene	ND	H	2.3	0.47
95-50-1	1,2-Dichlorobenzene	ND	H	7.5	0.98
96-12-8	1,2-Dibromo-3-Chloropropane	ND	* H	7.5	1.2
120-82-1	1,2,4-Trichlorobenzene	ND	H	1.5	0.32
87-61-6	1,2,3-Trichlorobenzene	ND	H	2.3	0.45
87-68-3	Hexachlorobutadiene	ND	H	2.3	0.45
91-20-3	Naphthalene	ND	H	7.5	1.4
1634-04-4	Methyl tert-butyl ether	ND	H	1.5	0.23

CAS NO.	SURROGATE	%REC	Q	LIMITS
2037-26-5	Toluene-d8 (Surr)	98		80-120
460-00-4	4-Bromofluorobenzene (Surr)	104		80-120
1868-53-7	Dibromofluoromethane (Surr)	101		80-120
98-08-8	Trifluorotoluene (Surr)	96		80-120
17060-07-0	1,2-Dichloroethane-d4 (Surr)	114		80-121

*mw 8/4/19*

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87601-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070603 Lab Sample ID: 580-87601-5  
 Matrix: Solid Lab File ID: 072319\_0046.D  
 Analysis Method: 8260C Date Collected: 07/10/2019 17:15  
 Sample wt/vol: 5(g) Date Analyzed: 07/24/2019 04:38  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: DB-VRX ID: 0.25 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 306461 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-71-8	Dichlorodifluoromethane	ND		2.0	0.49
74-87-3	Chloromethane	ND		5.0	0.93
75-01-4	Vinyl chloride	ND		2.0	0.30
74-83-9	Bromomethane	ND		1.0	0.21
75-00-3	Chloroethane	ND		10	1.6
75-69-4	Trichlorofluoromethane	ND		2.0	0.30
75-35-4	1,1-Dichloroethene	ND		5.0	1.1
75-09-2	Methylene Chloride	ND		40	9.9
156-60-5	trans-1,2-Dichloroethene	ND		2.0	0.40
75-34-3	1,1-Dichloroethane	ND		1.0	0.19
594-20-7	2,2-Dichloropropane	ND		5.0	0.90
156-59-2	cis-1,2-Dichloroethene	ND		3.0	0.60
74-97-5	Bromochloromethane	ND		2.0	0.25
67-66-3	Chloroform	0.58	JQ	2.0	0.30
71-55-6	1,1,1-Trichloroethane	ND		2.0	0.30
56-23-5	Carbon tetrachloride	ND		2.0	0.30
563-58-6	1,1-Dichloropropene	ND		2.0	0.30
71-43-2	Benzene	ND		2.0	0.39
107-06-2	1,2-Dichloroethane	ND		1.0	0.20
79-01-6	Trichloroethene	ND		2.0	0.30
78-87-5	1,2-Dichloropropane	ND		2.0	0.40
74-95-3	Dibromomethane	ND		1.0	0.17
75-27-4	Bromodichloromethane	ND		1.0	0.18
10061-01-5	cis-1,3-Dichloropropene	ND		1.0	0.20
108-88-3	Toluene	ND		10	1.3
10061-02-6	trans-1,3-Dichloropropene	ND		10	1.4
79-00-5	1,1,2-Trichloroethane	ND		2.0	0.25
127-18-4	Tetrachloroethene	ND		2.0	0.40
142-28-9	1,3-Dichloropropane	ND		2.0	0.23
124-48-1	Dibromochloromethane	ND		1.5	0.27
106-93-4	1,2-Dibromoethane	ND		1.0	0.20
108-90-7	Chlorobenzene	ND		2.0	0.25
100-41-4	Ethylbenzene	ND		2.0	0.41
630-20-6	1,1,1,2-Tetrachloroethane	ND		3.0	0.59
79-34-5	1,1,2,2-Tetrachloroethane	ND		4.0	0.90
179601-23-1	m-Xylene & p-Xylene	ND		10	1.7

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87601-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070603 Lab Sample ID: 580-87601-5  
 Matrix: Solid Lab File ID: 072319\_0046.D  
 Analysis Method: 8260C Date Collected: 07/10/2019 17:15  
 Sample wt/vol: 5(g) Date Analyzed: 07/24/2019 04:38  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: DB-VRX ID: 0.25 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 306461 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
95-47-6	o-Xylene	ND		5.0	0.92
100-42-5	Styrene	ND		3.0	0.74
75-25-2	Bromoform	ND		5.0	0.84
98-82-8	Isopropylbenzene	ND		2.0	0.46
108-86-1	Bromobenzene	ND		10	1.0
103-65-1	N-Propylbenzene	ND		5.0	0.76
96-18-4	1,2,3-Trichloropropane	ND		5.0	1.0
95-49-8	2-Chlorotoluene	ND		5.0	0.93
108-67-8	1,3,5-Trimethylbenzene	ND		5.0	0.81
106-43-4	4-Chlorotoluene	ND		5.0	1.0
98-06-6	t-Butylbenzene	ND		3.0	0.66
95-63-6	1,2,4-Trimethylbenzene	ND		5.0	1.2
135-98-8	sec-Butylbenzene	ND		3.0	0.67
541-73-1	1,3-Dichlorobenzene	ND		5.0	1.1
99-87-6	4-Isopropyltoluene	ND		2.0	0.40
106-46-7	1,4-Dichlorobenzene	ND		5.0	0.98
104-51-8	n-Butylbenzene	ND		3.0	0.63
95-50-1	1,2-Dichlorobenzene	ND		10	1.3
96-12-8	1,2-Dibromo-3-Chloropropane	ND		10	1.6
120-82-1	1,2,4-Trichlorobenzene	ND		2.0	0.42
87-61-6	1,2,3-Trichlorobenzene	ND		3.0	0.60
87-68-3	Hexachlorobutadiene	ND		3.0	0.60
91-20-3	Naphthalene	ND		10	1.8
1634-04-4	Methyl tert-butyl ether	ND		2.0	0.30

CAS NO.	SURROGATE	%REC	Q	LIMITS
2037-26-5	Toluene-d8 (Surr)	103		80-120
460-00-4	4-Bromofluorobenzene (Surr)	99		80-120
1868-53-7	Dibromofluoromethane (Surr)	96		80-120
98-08-8	Trifluorotoluene (Surr)	97		80-120
17060-07-0	1,2-Dichloroethane-d4 (Surr)	98		80-121

*MW 8/4/19*





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### MEMORANDUM

DATE: August 15, 2019

TO: Seth Wing, START-IV Project Manager, E & E, Seattle, WA

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington *MW*

SUBJ: **Organic Data Quality Assurance Review, May Creek Removal Action Site, Renton, Washington**

REF: TO: TO-68HE0718F0470 PAN: 1004530.0470.001.01

The data quality assurance review of 4 soil samples collected from the May Creek Removal Action site in Renton, Washington, has been completed. Semivolatile Organic Compound (SVOC) analysis (EPA Method 8270) was performed by Test America, Inc., Tacoma, Washington. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Manual Process (S2B/4VM).

The samples were numbered: 19070001 19070002 19070003 19070004

#### Data Qualifications:

**1. Sample Holding Times: Satisfactory.**

The samples were received at 10.5°C, exceeding the QC limits of 0°C to 6°C; associated positive results and sample quantitation limits were qualified as estimated quantities with a low bias (JL or UJL). The samples were collected on July 10, 2019, were extracted on July 19, 2019, and were analyzed by July 22, 2019, therefore meeting holding time criteria of less than 14 days between collection and extraction and less than 40 days between extraction and analysis.

**2. Tuning: Acceptable.**

Tuning was performed at the beginning of each 12-hour analysis sequence. All results were within QC limits.

**3. Initial Calibration: Satisfactory.**

All average Relative Response Factors (RRFs) were within the QC limits except n-nitroso-di-n-propyl amine; associated sample quantitation limits were rejected (R). All Relative Standard Deviations (RSDs) were within the QC limits.

**4. Continuing Calibration: Satisfactory.**

All RRFs were within the QC limits except n-nitroso-di-n-propyl amine; no additional actions were taken. All % differences were within the QC limits.

**5. Blanks: Satisfactory.**

A method blank was analyzed for each 20 sample batch per matrix. There were no detections in any method blank except butyl benzyl phthalate (112 ug/kg). Associated positive sample results less than the reporting limit were qualified as not detected (U).

**6. System Monitoring Compounds (SMCs): Satisfactory.**

All SMC recoveries were within QC limits except one high outlier in sample 19070004 (evidence of matrix interference was present) and one low outlier (3% below QC limits) in the method blank; no actions were taken as all other SMCs in these samples were acceptable.

**7. Blank Spike (BS) Analysis: Satisfactory.**

BS analyses were performed per SDG or per matrix per concentration level, whichever was more frequent. All recoveries were within QC limits except some high recovery outliers; no actions were taken as these analytes were not detected in the samples.

**8. Internal Standards: Acceptable.**

All internal standards (IS) were within  $\pm 30$  seconds of the continuing calibration IS retention times. All area counts were within 50 % to 200 % of the continuing calibration area counts.

**9. Overall Assessment of Data for Use**

A total of 268 results were validated in this data memorandum. No sample results were qualified as estimated quantities (J) based on duplicate precision outliers, spike accuracy outliers, holding time outliers, or incorrect sample containers. A total of 268 sample results were qualified as estimated quantities based on sample temperature outliers. The following analyte was detected in the method blank: butyl benzyl phthalate. No sample results were rejected (R).

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the analytical method(s), the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, and/or the Office of Emergency and Remedial Response Publication "National Functional Guidelines for Superfund Organic Methods Data Review, January 2017". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

H - The sample result is biased high.

J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

K - The bias of the sample is not known.

L - The sample result is biased low.

N - The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification".

NJ - The analyte has been "tentatively identified" or "presumptively" as present and the associated numerical value is the estimated concentration in the sample.

- Q - Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.
- R - The data is rejected and unusable. The analyte may or may not be present in the sample.
- U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.



FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87601-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070001

Lab Sample ID: 580-87601-1

Matrix: Solid

Lab File ID: 0722A012.D

Analysis Method: 8270D

Date Collected: 07/10/2019 10:00

Extract. Method: 3550B

Date Extracted: 07/19/2019 10:03

Sample wt/vol: 10.513(g)

Date Analyzed: 07/22/2019 14:35

Con. Extract Vol.: 10(mL)

Dilution Factor: 1

Injection Volume: 1(uL)

Level: (low/med) Low

% Moisture: 9.8

GPC Cleanup: (Y/N) N

Analysis Batch No.: 306240

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
108-95-2	Phenol	ND		160	24
111-44-4	Bis(2-chloroethyl)ether	ND		110	8.1
95-57-8	2-Chlorophenol	ND		210	14
541-73-1	1,3-Dichlorobenzene	ND		53	5.1
106-46-7	1,4-Dichlorobenzene	ND		53	8.8
100-51-6	Benzyl alcohol	ND		530	81
95-50-1	1,2-Dichlorobenzene	ND		53	13
95-48-7	2-Methylphenol	ND		160	10
15831-10-4	3 & 4 Methylphenol	ND		210	16
621-64-7	N-Nitrosodi-n-propylamine	ND		210	23
67-72-1	Hexachloroethane	ND		160	9.3
98-95-3	Nitrobenzene	ND		210	21
78-59-1	Isophorone	ND		160	7.8
88-75-5	2-Nitrophenol	ND		210	22
105-67-9	2,4-Dimethylphenol	ND		110	16
65-85-0	Benzoic acid	ND		2100	610
111-91-1	Bis(2-chloroethoxy)methane	ND		210	19
120-83-2	2,4-Dichlorophenol	ND		110	16
120-82-1	1,2,4-Trichlorobenzene	ND		53	6.3
91-20-3	Naphthalene	7.5	JQ	26	5.3
106-47-8	4-Chloroaniline	ND		1600	420
87-68-3	Hexachlorobutadiene	ND		53	16
59-50-7	4-Chloro-3-methylphenol	ND		160	35
91-57-6	2-Methylnaphthalene	12	JQ	53	9.3
77-47-4	Hexachlorocyclopentadiene	ND		110	21
88-06-2	2,4,6-Trichlorophenol	ND		160	38
95-95-4	2,4,5-Trichlorophenol	ND		210	47
91-58-7	2-Chloronaphthalene	ND		26	5.3
88-74-4	2-Nitroaniline	ND		110	16
131-11-3	Dimethyl phthalate	ND		160	14
208-96-8	Acenaphthylene	ND		26	5.3
606-20-2	2,6-Dinitrotoluene	ND		160	36
99-09-2	3-Nitroaniline	ND		210	42
83-32-9	Acenaphthene	ND		26	5.3

FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87601-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070001

Lab Sample ID: 580-87601-1

Matrix: Solid

Lab File ID: 0722A012.D

Analysis Method: 8270D

Date Collected: 07/10/2019 10:00

Extract. Method: 3550B

Date Extracted: 07/19/2019 10:03

Sample wt/vol: 10.513(g)

Date Analyzed: 07/22/2019 14:35

Con. Extract Vol.: 10(mL)

Dilution Factor: 1

Injection Volume: 1(uL)

Level: (low/med) Low

% Moisture: 9.8

GPC Cleanup: (Y/N) N

Analysis Batch No.: 306240

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
51-28-5	2,4-Dinitrophenol	ND		1100	210
100-02-7	4-Nitrophenol	ND		1600	390
132-64-9	Dibenzofuran	ND		160	6.2
121-14-2	2,4-Dinitrotoluene	ND		210	45
84-66-2	Diethyl phthalate	ND		1600	80
7005-72-3	4-Chlorophenyl phenyl ether	ND		210	6.6
86-73-7	Fluorene	ND		26	5.3
100-01-6	4-Nitroaniline	ND		160	53
534-52-1	4,6-Dinitro-2-methylphenol	ND		1100	110
86-30-6	N-Nitrosodiphenylamine	ND		63	8.4
101-55-3	4-Bromophenyl phenyl ether	ND		210	9.6
118-74-1	Hexachlorobenzene	ND		53	16
87-86-5	Pentachlorophenol	ND		470	140
85-01-8	Phenanthrene	17	JQ	63	13
120-12-7	Anthracene	ND		26	5.3
84-74-2	Di-n-butyl phthalate	64	JQ	530	60
206-44-0	Fluoranthene	25	JQ	26	5.3
129-00-0	Pyrene	35	JQ	63	6.8
85-68-7	Butyl benzyl phthalate	96	JQ	210	54
91-94-1	3,3'-Dichlorobenzidine	ND		420	110
56-55-3	Benzo[a]anthracene	ND		26	5.3
218-01-9	Chrysene	ND		63	14
117-81-7	Bis(2-ethylhexyl) phthalate	530	JQ	630	75
117-84-0	Di-n-octyl phthalate	ND		160	60
50-32-8	Benzo[a]pyrene	28	JQ	63	14
193-39-5	Indeno[1,2,3-cd]pyrene	36	JQ	42	5.3
53-70-3	Dibenz(a,h)anthracene	ND		53	13
191-24-2	Benzo[g,h,i]perylene	37	JQ	63	9.5
86-74-8	Carbazole	ND		160	8.6
90-12-0	1-Methylnaphthalene	6.4	JQ	32	5.3
205-99-2	Benzo[b]fluoranthene	38	JQ	26	5.3
207-08-9	Benzo[k]fluoranthene	ND		63	15
108-60-1	bis(chloroisopropyl) ether	ND		210	15

FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87601-1  
SDG No.: \_\_\_\_\_  
Client Sample ID: 19070001 Lab Sample ID: 580-87601-1  
Matrix: Solid Lab File ID: 0722A012.D  
Analysis Method: 8270D Date Collected: 07/10/2019 10:00  
Extract. Method: 3550B Date Extracted: 07/19/2019 10:03  
Sample wt/vol: 10.513(g) Date Analyzed: 07/22/2019 14:35  
Con. Extract Vol.: 10(mL) Dilution Factor: 1  
Injection Volume: 1(uL) Level: (low/med) Low  
% Moisture: 9.8 GPC Cleanup: (Y/N) N  
Analysis Batch No.: 306240 Units: ug/Kg

CAS NO.	SURROGATE	%REC	Q	LIMITS
367-12-4	2-Fluorophenol (Surr)	100		60-125
4165-62-2	Phenol-d5 (Surr)	97		59-120
4165-60-0	Nitrobenzene-d5 (Surr)	93		62-120
321-60-8	2-Fluorobiphenyl	86		57-120
118-79-6	2,4,6-Tribromophenol (Surr)	93		52-125
1718-51-0	Terphenyl-d14 (Surr)	114		58-120

*MW 8/4/19*

FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87601-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070002 Lab Sample ID: 580-87601-2  
 Matrix: Solid Lab File ID: 0722A013.D  
 Analysis Method: 8270D Date Collected: 07/10/2019 10:00  
 Extract. Method: 3550B Date Extracted: 07/19/2019 10:03  
 Sample wt/vol: 10.307(g) Date Analyzed: 07/22/2019 14:59  
 Con. Extract Vol.: 10(mL) Dilution Factor: 1  
 Injection Volume: 1(uL) Level: (low/med) Low  
 % Moisture: 8.9 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 306240 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
108-95-2	Phenol	ND		160	25
111-44-4	Bis(2-chloroethyl)ether	ND		110	8.2
95-57-8	2-Chlorophenol	ND		210	14
541-73-1	1,3-Dichlorobenzene	ND		53	5.1
106-46-7	1,4-Dichlorobenzene	ND		53	8.8
100-51-6	Benzyl alcohol	ND		530	82
95-50-1	1,2-Dichlorobenzene	ND		53	13
95-48-7	2-Methylphenol	ND		160	10
15831-10-4	3 & 4 Methylphenol	ND		210	16
621-64-7	N-Nitrosodi-n-propylamine	ND		210	23
67-72-1	Hexachloroethane	ND		160	9.4
98-95-3	Nitrobenzene	ND		210	21
78-59-1	Isophorone	ND		160	7.9
88-75-5	2-Nitrophenol	ND		210	22
105-67-9	2,4-Dimethylphenol	ND		110	16
65-85-0	Benzoic acid	ND		2100	620
111-91-1	Bis(2-chloroethoxy)methane	ND		210	19
120-83-2	2,4-Dichlorophenol	ND		110	16
120-82-1	1,2,4-Trichlorobenzene	ND		53	6.4
91-20-3	Naphthalene	ND		27	5.3
106-47-8	4-Chloroaniline	ND		1600	430
87-68-3	Hexachlorobutadiene	ND		53	16
59-50-7	4-Chloro-3-methylphenol	ND		160	35
91-57-6	2-Methylnaphthalene	ND		53	9.4
77-47-4	Hexachlorocyclopentadiene	ND		110	21
88-06-2	2,4,6-Trichlorophenol	ND		160	38
95-95-4	2,4,5-Trichlorophenol	ND		210	48
91-58-7	2-Chloronaphthalene	ND		27	5.3
88-74-4	2-Nitroaniline	ND		110	16
131-11-3	Dimethyl phthalate	ND		160	14
208-96-8	Acenaphthylene	18	JQ	27	5.3
606-20-2	2,6-Dinitrotoluene	ND		160	36
99-09-2	3-Nitroaniline	ND		210	43
83-32-9	Acenaphthene	90	JL	27	5.3

FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87601-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070002

Lab Sample ID: 580-87601-2

Matrix: Solid

Lab File ID: 0722A013.D

Analysis Method: 8270D

Date Collected: 07/10/2019 10:00

Extract. Method: 3550B

Date Extracted: 07/19/2019 10:03

Sample wt/vol: 10.307(g)

Date Analyzed: 07/22/2019 14:59

Con. Extract Vol.: 10(mL)

Dilution Factor: 1

Injection Volume: 1(uL)

Level: (low/med) Low

% Moisture: 8.9

GPC Cleanup: (Y/N) N

Analysis Batch No.: 306240

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
51-28-5	2,4-Dinitrophenol	ND		1100	210
100-02-7	4-Nitrophenol	ND		1600	390
132-64-9	Dibenzofuran	45	J Q	160	6.3
121-14-2	2,4-Dinitrotoluene	ND		210	46
84-66-2	Diethyl phthalate	ND		1600	81
7005-72-3	4-Chlorophenyl phenyl ether	ND		210	6.7
86-73-7	Fluorene	160	JL	27	5.3
100-01-6	4-Nitroaniline	ND		160	53
534-52-1	4,6-Dinitro-2-methylphenol	ND		1100	110
86-30-6	N-Nitrosodiphenylamine	9.9	J Q	64	8.5
101-55-3	4-Bromophenyl phenyl ether	ND		210	9.7
118-74-1	Hexachlorobenzene	ND		53	16
87-86-5	Pentachlorophenol	ND		480	140
85-01-8	Phenanthrene	2500	JL	64	13
120-12-7	Anthracene	660	JL	27	5.3
84-74-2	Di-n-butyl phthalate	ND		530	61
206-44-0	Fluoranthene	4500	JL	27	5.3
129-00-0	Pyrene	3800	JL	64	6.8
85-68-7	Butyl benzyl phthalate	64	J Q	1210	54
91-94-1	3,3'-Dichlorobenzidine	ND		430	110
56-55-3	Benzo[a]anthracene	2500	JL	27	5.3
218-01-9	Chrysene	2500	JL	64	14
117-81-7	Bis(2-ethylhexyl) phthalate	390	J Q	640	76
117-84-0	Di-n-octyl phthalate	ND		160	61
50-32-8	Benzo[a]pyrene	1500	JL	64	14
193-39-5	Indeno[1,2,3-cd]pyrene	980	JL	43	5.3
53-70-3	Dibenz(a,h)anthracene	220	JL	53	13
191-24-2	Benzo[g,h,i]perylene	810	JL	64	9.6
86-74-8	Carbazole	230	JL	160	8.7
90-12-0	1-Methylnaphthalene	9.2	J Q	32	5.3
205-99-2	Benzo[b]fluoranthene	2000	JL	27	5.3
207-08-9	Benzo[k]fluoranthene	740	JL	64	15
108-60-1	bis(chloroisopropyl) ether	ND		210	15

*Man 8/14/19*

FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87601-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070002 Lab Sample ID: 580-87601-2  
 Matrix: Solid Lab File ID: 0722A013.D  
 Analysis Method: 8270D Date Collected: 07/10/2019 10:00  
 Extract. Method: 3550B Date Extracted: 07/19/2019 10:03  
 Sample wt/vol: 10.307(g) Date Analyzed: 07/22/2019 14:59  
 Con. Extract Vol.: 10(mL) Dilution Factor: 1  
 Injection Volume: 1(uL) Level: (low/med) Low  
 % Moisture: 8.9 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 306240 Units: ug/Kg

CAS NO.	SURROGATE	%REC	Q	LIMITS
367-12-4	2-Fluorophenol (Surr)	84		60-125
4165-62-2	Phenol-d5 (Surr)	84		59-120
4165-60-0	Nitrobenzene-d5 (Surr)	90		62-120
321-60-8	2-Fluorobiphenyl	83		57-120
118-79-6	2,4,6-Tribromophenol (Surr)	75		52-125
1718-51-0	Terphenyl-d14 (Surr)	110		58-120

*MW 8/14/19*

FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87601-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070003

Lab Sample ID: 580-87601-3

Matrix: Solid

Lab File ID: 0722A014.D

Analysis Method: 8270D

Date Collected: 07/10/2019 10:15

Extract. Method: 3550B

Date Extracted: 07/19/2019 10:03

Sample wt/vol: 10.723(g)

Date Analyzed: 07/22/2019 15:23

Con. Extract Vol.: 10(mL)

Dilution Factor: 1

Injection Volume: 1(uL)

Level: (low/med) Low

% Moisture: 10.6

GPC Cleanup: (Y/N) N

Analysis Batch No.: 306240

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
108-95-2	Phenol	ND		160	24
111-44-4	Bis(2-chloroethyl)ether	ND		100	8.0
95-57-8	2-Chlorophenol	ND		210	14
541-73-1	1,3-Dichlorobenzene	ND		52	5.0
106-46-7	1,4-Dichlorobenzene	ND		52	8.7
100-51-6	Benzyl alcohol	ND		520	80
95-50-1	1,2-Dichlorobenzene	ND		52	13
95-48-7	2-Methylphenol	ND		160	10
15831-10-4	3 & 4 Methylphenol	ND		210	16
621-64-7	N-Nitrosodi-n-propylamine	ND		210	23
67-72-1	Hexachloroethane	ND		160	9.2
98-95-3	Nitrobenzene	ND		210	21
78-59-1	Isophorone	ND		160	7.7
88-75-5	2-Nitrophenol	ND		210	22
105-67-9	2,4-Dimethylphenol	ND		100	16
65-85-0	Benzoic acid	1300	J Q	2100	600
111-91-1	Bis(2-chloroethoxy)methane	ND		210	19
120-83-2	2,4-Dichlorophenol	ND		100	16
120-82-1	1,2,4-Trichlorobenzene	ND		52	6.3
91-20-3	Naphthalene	120	JL	26	5.2
106-47-8	4-Chloroaniline	ND		1600	420
87-68-3	Hexachlorobutadiene	ND		52	16
59-50-7	4-Chloro-3-methylphenol	ND		160	34
91-57-6	2-Methylnaphthalene	210	JL	52	9.2
77-47-4	Hexachlorocyclopentadiene	ND		100	21
88-06-2	2,4,6-Trichlorophenol	ND		160	38
95-95-4	2,4,5-Trichlorophenol	ND		210	47
91-58-7	2-Chloronaphthalene	ND		26	5.2
88-74-4	2-Nitroaniline	ND		100	16
131-11-3	Dimethyl phthalate	ND		160	14
208-96-8	Acenaphthylene	ND		26	5.2
606-20-2	2,6-Dinitrotoluene	ND		160	35
99-09-2	3-Nitroaniline	ND		210	42
83-32-9	Acenaphthene	ND		26	5.2

FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87601-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070003

Lab Sample ID: 580-87601-3

Matrix: Solid

Lab File ID: 0722A014.D

Analysis Method: 8270D

Date Collected: 07/10/2019 10:15

Extract. Method: 3550B

Date Extracted: 07/19/2019 10:03

Sample wt/vol: 10.723(g)

Date Analyzed: 07/22/2019 15:23

Con. Extract Vol.: 10(mL)

Dilution Factor: 1

Injection Volume: 1(uL)

Level: (low/med) Low

% Moisture: 10.6

GPC Cleanup: (Y/N) N

Analysis Batch No.: 306240

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
51-28-5	2,4-Dinitrophenol	ND		1000	210
100-02-7	4-Nitrophenol	ND		1600	380
132-64-9	Dibenzofuran	ND		160	6.2
121-14-2	2,4-Dinitrotoluene	ND		210	45
84-66-2	Diethyl phthalate	ND		1600	79
7005-72-3	4-Chlorophenyl phenyl ether	ND		210	6.6
86-73-7	Fluorene	ND		26	5.2
100-01-6	4-Nitroaniline	ND		160	52
534-52-1	4,6-Dinitro-2-methylphenol	ND		1000	100
86-30-6	N-Nitrosodiphenylamine	ND		63	8.3
101-55-3	4-Bromophenyl phenyl ether	ND		210	9.5
118-74-1	Hexachlorobenzene	ND		52	16
87-86-5	Pentachlorophenol	ND		470	140
85-01-8	Phenanthrene	ND		63	13
120-12-7	Anthracene	ND		26	5.2
84-74-2	Di-n-butyl phthalate	ND		520	59
206-44-0	Fluoranthene	ND		26	5.2
129-00-0	Pyrene	77	JL	63	6.7
85-68-7	Butyl benzyl phthalate	ND		210	53
91-94-1	3,3'-Dichlorobenzidine	ND		420	100
56-55-3	Benzo[a]anthracene	ND		26	5.2
218-01-9	Chrysene	ND		63	14
117-81-7	Bis(2-ethylhexyl) phthalate	1200	JL	630	74
117-84-0	Di-n-octyl phthalate	ND		160	59
50-32-8	Benzo[a]pyrene	ND		63	14
193-39-5	Indeno[1,2,3-cd]pyrene	ND		42	5.2
53-70-3	Dibenz(a,h)anthracene	ND		52	13
191-24-2	Benzo[g,h,i]perylene	ND		63	9.4
86-74-8	Carbazole	ND		160	8.6
90-12-0	1-Methylnaphthalene	140	JL	31	5.2
205-99-2	Benzo[b]fluoranthene	ND		26	5.2
207-08-9	Benzo[k]fluoranthene	ND		63	15
108-60-1	bis(chloroisopropyl) ether	ND		210	15

*Handwritten:* 7/24/19



FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87601-1  
SDG No.: \_\_\_\_\_  
Client Sample ID: 19070003 Lab Sample ID: 580-87601-3  
Matrix: Solid Lab File ID: 0722A014.D  
Analysis Method: 8270D Date Collected: 07/10/2019 10:15  
Extract. Method: 3550B Date Extracted: 07/19/2019 10:03  
Sample wt/vol: 10.723(g) Date Analyzed: 07/22/2019 15:23  
Con. Extract Vol.: 10 (mL) Dilution Factor: 1  
Injection Volume: 1 (uL) Level: (low/med) Low  
% Moisture: 10.6 GPC Cleanup: (Y/N) N  
Analysis Batch No.: 306240 Units: ug/Kg

CAS NO.	SURROGATE	%REC	Q	LIMITS
367-12-4	2-Fluorophenol (Surr)	104		60-125
4165-62-2	Phenol-d5 (Surr)	102		59-120
4165-60-0	Nitrobenzene-d5 (Surr)	99		62-120
321-60-8	2-Fluorobiphenyl	72		57-120
118-79-6	2,4,6-Tribromophenol (Surr)	95		52-125
1718-51-0	Terphenyl-d14 (Surr)	115		58-120

*Man 8/14/19*

FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87601-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070004

Lab Sample ID: 580-87601-4

Matrix: Solid

Lab File ID: 0722A015.D

Analysis Method: 8270D

Date Collected: 07/10/2019 10:20

Extract. Method: 3550B

Date Extracted: 07/19/2019 10:03

Sample wt/vol: 10.293(g)

Date Analyzed: 07/22/2019 15:47

Con. Extract Vol.: 10 (mL)

Dilution Factor: 1

Injection Volume: 1 (uL)

Level: (low/med) Low

% Moisture: 8.7

GPC Cleanup: (Y/N) N

Analysis Batch No.: 306240

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
108-95-2	Phenol	ND		160	24
111-44-4	Bis(2-chloroethyl)ether	ND		110	8.2
95-57-8	2-Chlorophenol	ND		210	14
541-73-1	1,3-Dichlorobenzene	ND		53	5.1
106-46-7	1,4-Dichlorobenzene	ND		53	8.8
100-51-6	Benzyl alcohol	ND		530	82
95-50-1	1,2-Dichlorobenzene	ND		53	13
95-48-7	2-Methylphenol	ND		160	10
15831-10-4	3 & 4 Methylphenol	ND		210	16
621-64-7	N-Nitrosodi-n-propylamine	ND		210	23
67-72-1	Hexachloroethane	ND		160	9.4
98-95-3	Nitrobenzene	ND		210	21
78-59-1	Isophorone	ND		160	7.9
88-75-5	2-Nitrophenol	ND		210	22
105-67-9	2,4-Dimethylphenol	ND		110	16
65-85-0	Benzoic acid	ND		2100	620
111-91-1	Bis(2-chloroethoxy)methane	ND		210	19
120-83-2	2,4-Dichlorophenol	ND		110	16
120-82-1	1,2,4-Trichlorobenzene	ND		53	6.4
91-20-3	Naphthalene	ND		27	5.3
106-47-8	4-Chloroaniline	ND		1600	430
87-68-3	Hexachlorobutadiene	ND		53	16
59-50-7	4-Chloro-3-methylphenol	ND		160	35
91-57-6	2-Methylnaphthalene	ND		53	9.4
77-47-4	Hexachlorocyclopentadiene	ND		110	21
88-06-2	2,4,6-Trichlorophenol	ND		160	38
95-95-4	2,4,5-Trichlorophenol	ND		210	48
91-58-7	2-Chloronaphthalene	ND		27	5.3
88-74-4	2-Nitroaniline	ND		110	16
131-11-3	Dimethyl phthalate	15	JQ	160	14
208-96-8	Acenaphthylene	ND		27	5.3
606-20-2	2,6-Dinitrotoluene	ND		160	36
99-09-2	3-Nitroaniline	ND		210	43
83-32-9	Acenaphthene	ND		27	5.3

FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87601-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070004

Lab Sample ID: 580-87601-4

Matrix: Solid

Lab File ID: 0722A015.D

Analysis Method: 8270D

Date Collected: 07/10/2019 10:20

Extract. Method: 3550B

Date Extracted: 07/19/2019 10:03

Sample wt/vol: 10.293(g)

Date Analyzed: 07/22/2019 15:47

Con. Extract Vol.: 10(mL)

Dilution Factor: 1

Injection Volume: 1(uL)

Level: (low/med) Low

% Moisture: 8.7

GPC Cleanup: (Y/N) N

Analysis Batch No.: 306240

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
51-28-5	2,4-Dinitrophenol	ND		1100	210
100-02-7	4-Nitrophenol	ND		1600	390
132-64-9	Dibenzofuran	ND		160	6.3
121-14-2	2,4-Dinitrotoluene	ND		210	46
84-66-2	Diethyl phthalate	ND		1600	81
7005-72-3	4-Chlorophenyl phenyl ether	ND		210	6.7
86-73-7	Fluorene	ND		27	5.3
100-01-6	4-Nitroaniline	ND		160	53
534-52-1	4,6-Dinitro-2-methylphenol	ND		1100	110
86-30-6	N-Nitrosodiphenylamine	ND		64	8.5
101-55-3	4-Bromophenyl phenyl ether	ND		210	9.7
118-74-1	Hexachlorobenzene	ND		53	16
87-86-5	Pentachlorophenol	ND		480	140
85-01-8	Phenanthrene	ND		64	13
120-12-7	Anthracene	ND		27	5.3
84-74-2	Di-n-butyl phthalate	77	J Q	530	61
206-44-0	Fluoranthene	16	J	27	5.3
129-00-0	Pyrene	14	J	64	6.8
85-68-7	Butyl benzyl phthalate	ND		210	54
91-94-1	3,3'-Dichlorobenzidine	ND		430	110
56-55-3	Benzo[a]anthracene	ND		27	5.3
218-01-9	Chrysene	ND		64	14
117-81-7	Bis(2-ethylhexyl) phthalate	260	J Q	640	76
117-84-0	Di-n-octyl phthalate	ND		160	61
50-32-8	Benzo[a]pyrene	ND		64	14
193-39-5	Indeno[1,2,3-cd]pyrene	19	J Q	43	5.3
53-70-3	Dibenz(a,h)anthracene	ND		53	13
191-24-2	Benzo[g,h,i]perylene	19	J Q	64	9.6
86-74-8	Carbazole	ND		160	8.7
90-12-0	1-Methylnaphthalene	ND		32	5.3
205-99-2	Benzo[b]fluoranthene	15	J Q	27	5.3
207-08-9	Benzo[k]fluoranthene	ND		64	15
108-60-1	bis(chloroisopropyl) ether	ND		210	15

FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87601-1  
SDG No.: \_\_\_\_\_  
Client Sample ID: 19070004 Lab Sample ID: 580-87601-4  
Matrix: Solid Lab File ID: 0722A015.D  
Analysis Method: 8270D Date Collected: 07/10/2019 10:20  
Extract. Method: 3550B Date Extracted: 07/19/2019 10:03  
Sample wt/vol: 10.293(g) Date Analyzed: 07/22/2019 15:47  
Con. Extract Vol.: 10(mL) Dilution Factor: 1  
Injection Volume: 1(uL) Level: (low/med) Low  
% Moisture: 8.7 GPC Cleanup: (Y/N) N  
Analysis Batch No.: 306240 Units: ug/Kg

CAS NO.	SURROGATE	%REC	Q	LIMITS
367-12-4	2-Fluorophenol (Surr)	94		60-125
4165-62-2	Phenol-d5 (Surr)	92		59-120
4165-60-0	Nitrobenzene-d5 (Surr)	90		62-120
321-60-8	2-Fluorobiphenyl	85		57-120
118-79-6	2,4,6-Tribromophenol (Surr)	96		52-125
1718-51-0	Terphenyl-d14 (Surr)	125	<i>AW</i>	58-120

*mu 8/4/19*



## ecology and environment, inc.

Global Environmental Specialists

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### MEMORANDUM

DATE: August 12, 2019

TO: Seth Wing, START-IV Project Manager, E & E, Seattle, WA

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington *MW*

SUBJ: **Organic Data Quality Assurance Review, May Creek Removal Action Site, Renton, Washington**

REF: TO: TO-68HE0718F0470      PAN: 1004530.0470.001.01

The data quality assurance review of three soil samples collected from the May Creek Removal Action site located in Renton, Washington, has been completed. Analysis for Extended Diesel Range Total Petroleum Hydrocarbons (Ecology Method NWTPH-Dx) was performed by Test America, Inc., Tacoma, Washington. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Manual Process (S2B/4VM).

The samples were numbered:    19070138      19070139      19070140

#### Data Qualifications:

**1. Sample Holding Times: Acceptable.**

The samples were maintained at  $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ . The samples were collected on July 13, 2019, extracted on July 26, 2019, and analyzed by July 29, 2019, therefore meeting QC criteria of less than 14 days between collection and extraction for soil samples and less than 40 days between extraction and analysis.

**2. Initial Calibration: Acceptable.**

Calculations were verified as correct. All relative percent differences (RPDs) were within the laboratory control limits.

**3. Continuing Calibration: Acceptable.**

Calculations were verified as correct. All percent differences (%Ds) were within the laboratory control limits.

**4. Blanks: Acceptable.**

A method blank was analyzed for each extraction batch for each matrix and analysis system. Diesel- and motor oil-range TPHs were not detected in the method blank.

**5. System Monitoring Compounds (SMC): Acceptable.**

All recoveries of the SMCs were greater than 10% and within QC limits.

**6. Blank Spike (BS) and BS Duplicate (BSD): Acceptable.**

BS and BSD recoveries were within QC limits.

**7. Duplicates: Acceptable.**

All spike duplicate results were within QC limits.

**8. Quantitation and Quantitation Limits: Acceptable.**

Sample concentrations were correctly calculated.

**9. Laboratory Contact: Not Required.**

No laboratory contact was required.

**10. Overall Assessment of Data for Use**

The positive diesel result in all samples were not the typical elution pattern; associated sample results were qualified as estimated quantities with an unknown bias (JK).

A total of six results were validated in this data memorandum. No sample results were qualified as estimated quantities (J) based on duplicate precision outliers, spike accuracy outliers, holding time outliers, incorrect sample containers, or sample temperature outliers. No sample results were rejected (R).

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the analytical method(s), the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, and/or the Office of Emergency and Remedial Response Publication "National Functional Guidelines for Superfund Organic Methods Data Review, January 2019". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

H - The sample result is biased high.

J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

K - The bias of the sample is not known.

L - The sample result is biased low.

Q - Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.

- R - The data is rejected and unusable. The analyte may or may not be present in the sample.
- U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.

FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87638-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070138 Lab Sample ID: 580-87638-1  
 Matrix: Solid Lab File ID: 070B2001.D  
 Analysis Method: NWTPH-Dx Date Collected: 07/13/2019 00:01  
 Extraction Method: 3546 Date Extracted: 07/26/2019 13:40  
 Sample wt/vol: 11.416(g) Date Analyzed: 07/29/2019 21:29  
 Con. Extract Vol.: 10(mL) Dilution Factor: 1  
 Injection Volume: 1(uL) GC Column: ZB-1HT ID: 0.25(mm)  
 % Moisture: 10.0 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 306939 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00163	#2 Diesel (C10-C24)	330	<i>JK</i>	49	12
STL00299	Motor Oil (>C24-C36)	1300		49	17

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	85		50-150

*Mu 81279*



FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87638-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070139 Lab Sample ID: 580-87638-2  
 Matrix: Solid Lab File ID: 071B2101.D  
 Analysis Method: NWTPH-Dx Date Collected: 07/13/2019 00:01  
 Extraction Method: 3546 Date Extracted: 07/26/2019 13:40  
 Sample wt/vol: 13.190(g) Date Analyzed: 07/29/2019 21:52  
 Con. Extract Vol.: 10(mL) Dilution Factor: 1  
 Injection Volume: 1(uL) GC Column: ZB-1HT ID: 0.25 (mm)  
 % Moisture: 9.3 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 306939 Units: mg/Kg


CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00163	#2 Diesel (C10-C24)	360	OK	42	10
STL00299	Motor Oil (>C24-C36)	2000		42	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	86		50-150

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8/12/19

FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87638-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070140 Lab Sample ID: 580-87638-3  
 Matrix: Solid Lab File ID: 072B2201.D  
 Analysis Method: NWTPH-Dx Date Collected: 07/13/2019 00:01  
 Extraction Method: 3546 Date Extracted: 07/26/2019 13:40  
 Sample wt/vol: 11.607(g) Date Analyzed: 07/29/2019 22:14  
 Con. Extract Vol.: 10(mL) Dilution Factor: 1  
 Injection Volume: 1(uL) GC Column: ZB-1HT ID: 0.25(mm)  
 % Moisture: 10.1 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 306939 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00163	#2 Diesel (C10-C24)	240		48	12
STL00299	Motor Oil (>C24-C36)	740		48	17

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	96		50-150





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### MEMORANDUM

DATE: August 12, 2019

TO: Seth Wing, START-IV Project Manager, E & E, Seattle, Washington

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington *MW*

SUBJ: **Organic Data Quality Assurance Review, Gorst Creek Removal Action Site, Port Orchard, Washington**

REF: TO: TO-0520-001 PAN: 1004530.0019.001.02

The data quality assurance review of 4 soil samples collected from the Gorst Creek Removal Action site located in Port Orchard, Washington, has been completed. Analysis for Extended Gasoline Range Total Petroleum Hydrocarbons (Ecology Method NWTPH-Gx) analyses was performed by Test America, Inc., Tacoma, Washington. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Manual Process (S2B/4VM).

The samples were numbered: 19070138 19070139 19070140 19070608

#### Data Qualifications:

##### 1. **Sample Holding Times: Satisfactory.**

The samples were maintained and received within the QC limits of  $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ . The samples were collected on July 13, 2019, were received at the laboratory within 48 hours of collection, and were analyzed by August 1, 2019, therefore exceeding QC criteria of less than 14 days between collection and analysis for soil samples; associated sample results were qualified as estimated quantities with a low bias (JL or UJL).

##### 2. **Initial Calibration: Acceptable.**

Calculations were verified as correct. All relative percent differences (RPDs) were less than or equal to the laboratory control limits.

##### 3. **Continuing Calibration: Acceptable.**

Calculations were verified as correct. All percent differences were less than or equal to the laboratory control limits.

##### 4. **Blanks: Satisfactory.**

A method blank was analyzed at the required frequency of every 12 hours for each matrix, preparation technique, and analysis system. Gasoline-range TPHs were detected at 2.32 mg/kg in the August 1, 2019, method blank; associated sample results less than the reporting limit were qualified as

not detected (U). There were no detections in the trip blank.

**5. System Monitoring Compounds (SMC): Acceptable.**

All recoveries of the SMCs were greater than 10% and within QC limits.

**6. Blank Spikes (BS) and BS Duplicate (BSD) Analyses: Acceptable.**

BS and BSD results were within laboratory QC limits.

**7. Duplicates: Satisfactory.**

The spike duplicate results exceeded laboratory QC limits; no additional qualifications were applied.

**8. Quantitation and Quantitation Limits: Acceptable.**

Sample quantitation and sample quantitation limits were correctly calculated.

**9. Laboratory Contact: Not Required.**

No laboratory contact was required.

**10. Overall Assessment of Data for Use**

The positive result in sample 19070138 was a result of discrete peaks; the associated sample result was qualified as an estimated quantity with an unknown bias (JK).

Samples 19070138, 19070139, and 19070140 had a higher weight than required by the method; no qualifications were applied based on this.

A total of 4 results were validated in this data memorandum. No sample results were qualified as estimated quantities (J) based on duplicate precision outliers, spike accuracy outliers, incorrect sample containers, or sample temperature outliers. No sample results were rejected (R). A total of four results were qualified as estimated quantities (J) based on holding time outliers.

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the analytical method(s), the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, and/or the Office of Emergency and Remedial Response Publication "National Functional Guidelines for Superfund Organic Methods Data Review, January 2019". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

H - The sample result is biased high.

J - The result is an estimated quantity. The associated numerical value is the approximate

concentration of the analyte in the sample.

- K - The bias of the sample is not known.
- L - The sample result is biased low.
- Q - Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.
- R - The data is rejected and unusable. The analyte may or may not be present in the sample.
- U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.

FORM I  
GC VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87638-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070138 Lab Sample ID: 580-87638-1  
 Matrix: Solid Lab File ID: 08011913.D  
 Analysis Method: NWTPH-Gx Date Collected: 07/13/2019 00:01  
 Sample wt/vol: 14.454(g) Date Analyzed: 08/01/2019 16:52  
 Soil Aliquot Vol: 1.075 (mL) Dilution Factor: 1  
 Soil Extract Vol.: 10 (mL) GC Column: RTX-VRX ID: 0.45 (mm)  
 % Moisture: 10.0 Level: (low/med) Medium  
 Analysis Batch No.: 307267 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00228	Gasoline	<del>3.5</del> <i>JHB</i>		4.4 <i>UJL</i>	2.0

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	105		50-150
98-08-8	Trifluorotoluene (Surr)			

*Mu8-12-19*

FORM I  
GC VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87638-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070139 Lab Sample ID: 580-87638-2  
 Matrix: Solid Lab File ID: 08011914.D  
 Analysis Method: NWTPH-Gx Date Collected: 07/13/2019 00:01  
 Sample wt/vol: 14.192(g) Date Analyzed: 08/01/2019 17:16  
 Soil Aliquot Vol: 1.075 (mL) Dilution Factor: 1  
 Soil Extract Vol.: 10(mL) GC Column: RTX-VRX ID: 0.45 (mm)  
 % Moisture: 9.3 Level: (low/med) Medium  
 Analysis Batch No.: 307267 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00228	Gasoline	<del>2.1</del> JHB WW		4.4	2.0

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	93		50-150
98-08-8	Trifluorotoluene (Surr)			

*Handwritten signature/initials*

FORM I  
GC VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87638-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070140 Lab Sample ID: 580-87638-3  
 Matrix: Solid Lab File ID: 08011915.D  
 Analysis Method: NWTPH-Gx Date Collected: 07/13/2019 00:01  
 Sample wt/vol: 14.395(g) Date Analyzed: 08/01/2019 17:41  
 Soil Aliquot Vol: 1.075 (mL) Dilution Factor: 1  
 Soil Extract Vol.: 10(mL) GC Column: RTX-VRX ID: 0.45 (mm)  
 % Moisture: 10.1 Level: (low/med) Medium  
 Analysis Batch No.: 307267 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00228	Gasoline	14	<del>14</del> <i>DL</i>	4.4	2.0

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	84		50-150
98-08-8	Trifluorotoluene (Surr)			

*MW 8/19*



FORM I  
GC VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87638-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070608 Lab Sample ID: 580-87638-4  
 Matrix: Solid Lab File ID: 07311933.D  
 Analysis Method: NWTPH-Gx Date Collected: 07/13/2019 00:01  
 Sample wt/vol: 10(g) Date Analyzed: 08/01/2019 01:26  
 Soil Aliquot Vol: 1.075 (mL) Dilution Factor: 1  
 Soil Extract Vol.: 10(mL) GC Column: RTX-VRX ID: 0.45 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Medium  
 Analysis Batch No.: 307211 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00228	Gasoline	ND	1	5.0	2.3

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	97		50-150

*MW 8-19*



**MEMORANDUM**

DATE: August 15, 2019

TO: Seth Wing, START-IV Project Manager, E & E, Seattle, WA

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington *MW*

SUBJ: **Organic Data Quality Assurance Review, May Creek Removal Action Site, Renton, Washington**

REF: TO: TO-68HE0718F0470 PAN: 1004530.0470.001.01

The data quality assurance review of 2 water samples collected from the May Creek Removal Action site in Renton, Washington, has been completed. Volatile Organic Compound (VOC) analysis (EPA Method 8260) was performed by Test America, Inc., Tacoma, Washington. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Manual Process (S2B/4VM).

The samples were numbered: 19070607 19070801

**Data Qualifications:**

**1. Sample Holding Times: Acceptable.**

The samples were maintained within the QC limits of  $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ . The samples were collected on July 13, 2019, were received at the laboratory within 48 hours of collection, and were analyzed by July 26, 2019, therefore meeting QC criteria of less than 14 days between collection and analysis for preserved water samples.

**2. Tuning: Acceptable.**

Tuning was performed at the beginning of each 12-hour analysis sequence. All results were within QC limits.

**3. Initial Calibration: Acceptable.**

All average Relative Response Factors (RRFs) were within the QC limits. All Relative Standard Deviations (RSDs) and/or correlation coefficients were within the QC limits.

**4. Continuing Calibration: Satisfactory.**

All RRFs were within the QC limits. Applicable percent differences were within QC limits except dichlorodifluoromethane with a low recovery associated with sample 19070607 and 1,3,5-trimethylbenzene and n-propyl benzene with low recoveries associated with sample 19070801. Associated positive results and sample quantitation limits associated with low recoveries were qualified as estimated quantities with a low bias (JL or UJL).

**5. Blanks: Acceptable.**

A method blank was analyzed for each 20 sample batch per matrix. There were no detections in any method or field blank.

**6. System Monitoring Compounds (SMCs): Satisfactory.**

All SMC recoveries were within QC limits except one high recovery in the method blank; no actions were taken as there were no detections in the method blank.

**7. Blank Spike (BS)/BS Duplicate (BSD) Analysis: Satisfactory.**

BS and BSD analyses were performed per SDG or per matrix per concentration level, whichever was more frequent. All recoveries were within QC limits except vinyl chloride with a high BS recovery. This analyte was not detected in the associated samples; therefore, no qualifications were required.

**8. Spike Duplicate Analysis: Satisfactory.**

Spike duplicate analyses were performed per SDG or per matrix per concentration level, whichever was more frequent. All spike duplicate results were within QC limits except o-xylene. No actions were taken based on the duplicate outlier alone.

**9. Internal Standards: Acceptable.**

All internal standards were within  $\pm 30$  seconds of the continuing calibration internal standard retention times. All area counts were within 50 % to 200 % of the continuing calibration area counts.

**10. Overall Assessment of Data for Use**

A total of 120 results were validated in this data memorandum. No sample results were qualified as estimated quantities (J) based on duplicate precision outliers, spike accuracy outliers, holding time outliers, incorrect sample containers, or sample temperature outliers. No sample results were rejected (R).

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the analytical method(s), the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, and/or the Office of Emergency and Remedial Response Publication "National Functional Guidelines for Superfund Organic Methods Data Review, January 2017". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

H - The sample result is biased high.

J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

K - The bias of the sample is not known.

L - The sample result is biased low.

N - The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification".

NJ - The analyte has been "tentatively identified" or "presumptively" as present and the associated

numerical value is the estimated concentration in the sample.

- Q - Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.
- R - The data is rejected and unusable. The analyte may or may not be present in the sample.
- U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87642-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070607

Lab Sample ID: 580-87642-2

Matrix: Solid

Lab File ID: 072519\_0038.D

Analysis Method: 8260C

Date Collected: 07/13/2019 12:01

Sample wt/vol: 5(g)

Date Analyzed: 07/26/2019 02:52

Soil Aliquot Vol: \_\_\_\_\_

Dilution Factor: 1

Soil Extract Vol.: \_\_\_\_\_

GC Column: DB-VRX ID: 0.25 (mm)

% Moisture: \_\_\_\_\_

Level: (low/med) Low

Analysis Batch No.: 306671

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-71-8	Dichlorodifluoromethane	ND		2.0	0.49
74-87-3	Chloromethane	ND		5.0	0.93
75-01-4	Vinyl chloride	ND		2.0	0.30
74-83-9	Bromomethane	ND		1.0	0.21
75-00-3	Chloroethane	ND		10	1.6
75-69-4	Trichlorofluoromethane	ND		2.0	0.30
75-35-4	1,1-Dichloroethene	ND		5.0	1.1
75-09-2	Methylene Chloride	ND		40	9.9
156-60-5	trans-1,2-Dichloroethene	ND		2.0	0.40
75-34-3	1,1-Dichloroethane	ND		1.0	0.19
594-20-7	2,2-Dichloropropane	ND		5.0	0.90
156-59-2	cis-1,2-Dichloroethene	ND		3.0	0.60
74-97-5	Bromochloromethane	ND		2.0	0.25
67-66-3	Chloroform	ND		2.0	0.30
71-55-6	1,1,1-Trichloroethane	ND		2.0	0.30
56-23-5	Carbon tetrachloride	ND		2.0	0.30
563-58-6	1,1-Dichloropropene	ND		2.0	0.30
71-43-2	Benzene	ND		2.0	0.39
107-06-2	1,2-Dichloroethane	ND		1.0	0.20
79-01-6	Trichloroethene	ND		2.0	0.30
78-87-5	1,2-Dichloropropane	ND		2.0	0.40
74-95-3	Dibromomethane	ND		1.0	0.17
75-27-4	Bromodichloromethane	ND		1.0	0.18
10061-01-5	cis-1,3-Dichloropropene	ND		1.0	0.20
108-88-3	Toluene	ND		10	1.3
10061-02-6	trans-1,3-Dichloropropene	ND		10	1.4
79-00-5	1,1,2-Trichloroethane	ND		2.0	0.25
127-18-4	Tetrachloroethene	ND		2.0	0.40
142-28-9	1,3-Dichloropropane	ND		2.0	0.23
124-48-1	Dibromochloromethane	ND		1.5	0.27
106-93-4	1,2-Dibromoethane	ND		1.0	0.20
108-90-7	Chlorobenzene	ND		2.0	0.25
100-41-4	Ethylbenzene	ND		2.0	0.41
630-20-6	1,1,1,2-Tetrachloroethane	ND		3.0	0.59
79-34-5	1,1,2,2-Tetrachloroethane	ND		4.0	0.90
179601-23-1	m-Xylene & p-Xylene	ND		10	1.7

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87642-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070607 Lab Sample ID: 580-87642-2  
 Matrix: Solid Lab File ID: 072519\_0038.D  
 Analysis Method: 8260C Date Collected: 07/13/2019 12:01  
 Sample wt/vol: 5(g) Date Analyzed: 07/26/2019 02:52  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: DB-VRX ID: 0.25 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 306671 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
95-47-6	o-Xylene	ND	<i>mu</i>	5.0	0.92
100-42-5	Styrene	ND		3.0	0.74
75-25-2	Bromoform	ND		5.0	0.84
98-82-8	Isopropylbenzene	ND		2.0	0.46
108-86-1	Bromobenzene	ND		10	1.0
103-65-1	N-Propylbenzene	ND		5.0	0.76
96-18-4	1,2,3-Trichloropropane	ND		5.0	1.0
95-49-8	2-Chlorotoluene	ND		5.0	0.93
108-67-8	1,3,5-Trimethylbenzene	ND		5.0	0.81
106-43-4	4-Chlorotoluene	ND		5.0	1.0
98-06-6	t-Butylbenzene	ND		3.0	0.66
95-63-6	1,2,4-Trimethylbenzene	ND		5.0	1.2
135-98-8	sec-Butylbenzene	ND		3.0	0.67
541-73-1	1,3-Dichlorobenzene	ND		5.0	1.1
99-87-6	4-Isopropyltoluene	ND		2.0	0.40
106-46-7	1,4-Dichlorobenzene	ND		5.0	0.98
104-51-8	n-Butylbenzene	ND		3.0	0.63
95-50-1	1,2-Dichlorobenzene	ND		10	1.3
96-12-8	1,2-Dibromo-3-Chloropropane	ND		10	1.6
120-82-1	1,2,4-Trichlorobenzene	ND		2.0	0.42
87-61-6	1,2,3-Trichlorobenzene	ND		3.0	0.60
87-68-3	Hexachlorobutadiene	ND		3.0	0.60
91-20-3	Naphthalene	ND		10	1.8
1634-04-4	Methyl tert-butyl ether	ND		2.0	0.30

CAS NO.	SURROGATE	%REC	Q	LIMITS
2037-26-5	Toluene-d8 (Surr)	98		80-120
460-00-4	4-Bromofluorobenzene (Surr)	104		80-120
1868-53-7	Dibromofluoromethane (Surr)	99		80-120
98-08-8	Trifluorotoluene (Surr)	99		80-120
17060-07-0	1,2-Dichloroethane-d4 (Surr)	115		80-121

*mu 8/4/19*

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87642-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070801

Lab Sample ID: 580-87642-1

Matrix: Water

Lab File ID: 07161916.D

Analysis Method: 8260C

Date Collected: 07/13/2019 12:01

Sample wt/vol: 10 (mL)

Date Analyzed: 07/16/2019 17:04

Soil Aliquot Vol: \_\_\_\_\_

Dilution Factor: 1

Soil Extract Vol.: \_\_\_\_\_

GC Column: DB-VRX ID: 0.25 (mm)

% Moisture: \_\_\_\_\_

Level: (low/med) Low

Analysis Batch No.: 305739

Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
95-50-1	1,2-Dichlorobenzene	ND		0.30	0.050
95-49-8	2-Chlorotoluene	ND		0.50	0.12
96-18-4	1,2,3-Trichloropropane	ND		0.20	0.050
56-23-5	Carbon tetrachloride	ND		0.20	0.025
10061-01-5	cis-1,3-Dichloropropene	ND		0.20	0.090
108-90-7	Chlorobenzene	ND		0.20	0.025
75-01-4	Vinyl chloride	0.031		0.020	0.013
135-98-8	sec-Butylbenzene	ND		1.00	0.17
74-95-3	Dibromomethane	ND		0.20	0.062
179601-23-1	m-Xylene & p-Xylene	ND		0.50	0.12
95-47-6	o-Xylene	ND		0.50	0.15
120-82-1	1,2,4-Trichlorobenzene	ND		0.30	0.072
100-42-5	Styrene	ND		0.50	0.19
74-97-5	Chlorobromomethane	ND		0.20	0.025
75-27-4	Dichlorobromomethane	ND		0.20	0.060
541-73-1	1,3-Dichlorobenzene	ND		0.30	0.050
71-43-2	Benzene	ND		0.20	0.030
75-00-3	Chloroethane	ND		0.50	0.096
10061-02-6	trans-1,3-Dichloropropene	ND		0.20	0.092
87-61-6	1,2,3-Trichlorobenzene	ND		0.50	0.15
103-65-1	N-Propylbenzene	ND		0.30	0.091
99-87-6	4-Isopropyltoluene	ND		0.30	0.050
104-51-8	n-Butylbenzene	ND		0.50	0.080
563-58-6	1,1-Dichloropropene	ND		0.20	0.036
156-59-2	cis-1,2-Dichloroethene	ND		0.20	0.055
79-34-5	1,1,2,2-Tetrachloroethane	ND		0.20	0.056
95-63-6	1,2,4-Trimethylbenzene	ND		0.30	0.072
108-88-3	Toluene	ND		0.20	0.050
91-20-3	Naphthalene	ND		1.0	0.22
108-67-8	1,3,5-Trimethylbenzene	ND		0.50	0.15
142-28-9	1,3-Dichloropropane	ND		0.20	0.056
67-66-3	Chloroform	0.090		0.20	0.030
106-43-4	4-Chlorotoluene	ND		0.30	0.050
124-48-1	Chlorodibromomethane	ND		0.20	0.055
75-71-8	Dichlorodifluoromethane	ND		0.40	0.13
79-00-5	1,1,2-Trichloroethane	ND		0.20	0.070

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87642-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070801 Lab Sample ID: 580-87642-1  
 Matrix: Water Lab File ID: 07161916.D  
 Analysis Method: 8260C Date Collected: 07/13/2019 12:01  
 Sample wt/vol: 10 (mL) Date Analyzed: 07/16/2019 17:04  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: DB-VRX ID: 0.25 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 305739 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
98-06-6	tert-Butylbenzene	ND		0.50	0.10
74-87-3	Chloromethane	ND		0.50	0.15
75-09-2	Methylene Chloride	ND		5.0	0.74
75-35-4	1,1-Dichloroethene	ND		0.20	0.10
98-82-8	Isopropylbenzene	ND		1.0	0.19
107-06-2	1,2-Dichloroethane	ND		0.20	0.043
127-18-4	Tetrachloroethene	ND		0.50	0.084
71-55-6	1,1,1-Trichloroethane	ND		0.20	0.025
594-20-7	2,2-Dichloropropane	ND		0.50	0.060
106-93-4	Ethylene Dibromide	ND		0.10	0.025
75-25-2	Bromoform	ND		0.50	0.16
96-12-8	1,2-Dibromo-3-Chloropropane	ND		2.0	0.44
75-69-4	Trichlorofluoromethane	ND		0.50	0.11
79-01-6	Trichloroethene	ND		0.20	0.066
108-86-1	Bromobenzene	ND		0.20	0.035
78-87-5	1,2-Dichloropropane	ND		0.20	0.060
630-20-6	1,1,1,2-Tetrachloroethane	ND		0.30	0.027
100-41-4	Ethylbenzene	ND		0.20	0.030
156-60-5	trans-1,2-Dichloroethene	ND		0.20	0.089
87-68-3	Hexachlorobutadiene	ND		0.50	0.15
75-34-3	1,1-Dichloroethane	ND		0.20	0.025
74-83-9	Bromomethane	ND		0.50	0.16
106-46-7	1,4-Dichlorobenzene	ND		0.30	0.050
1634-04-4	Methyl tert-butyl ether	ND		0.30	0.070

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	101		80-120
2037-26-5	Toluene-d8 (Surr)	102		80-120
98-08-8	Trifluorotoluene (Surr)	95		80-120
1868-53-7	Dibromofluoromethane (Surr)	113		80-120
17060-07-0	1,2-Dichloroethane-d4 (Surr)	121		80-120





**MEMORANDUM**

DATE: August 15, 2019

TO: Seth Wing, START-IV Project Manager, E & E, Seattle, WA

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington *MW*

SUBJ: **Organic Data Quality Assurance Review, May Creek Removal Action Site, Renton, Washington**

REF: TO: TO-68HE0713F0470      PAN: 1004530.0470.001.01

The data quality assurance review of 1 water sample collected from the May Creek Removal Action site in Renton, Washington, has been completed. Semivolatile Organic Compound (SVOC) analysis (EPA Method 8270) was performed by Test America, Inc., Tacoma, Washington. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Manual Process (S2B/4VM).

The sample was numbered: 19070801

**Data Qualifications:**

**1. Sample Holding Times: Acceptable.**

The sample was maintained and received within the QC limits of 0°C to 6°C. The sample was collected on July 13, 2019, was extracted on July 16, 2019, and was analyzed by July 19, 2019, therefore meeting holding time criteria of less than 7 days between collection and extraction and less than 40 days between extraction and analysis.

**2. Tuning: Acceptable.**

Tuning was performed at the beginning of each 12-hour analysis sequence. All results were within QC limits.

**3. Initial Calibration: Satisfactory.**

All average Relative Response Factors (RRFs) were within the QC limits except n-nitroso-di-n-propyl amine; the associated sample quantitation limit was rejected (R). All Relative Standard Deviations (RSDs) were within the QC limits.

**4. Continuing Calibration: Satisfactory.**

All RRFs were within the QC limits except n-nitroso-di-n-propyl amine; no additional actions were taken. All % differences were within the QC limits except high 3-nitroaniline and 4-chloroaniline recoveries; no actions were taken as these analytes were not detected in the sample.

**5. Blanks: Satisfactory.**

A method blank was analyzed for each 20 sample batch per matrix. There were no detections in any method blank except di-n-octyl phthalate (0.212 ug/L), benzyl alcohol (1.18 ug/L), and bis(2-ethylhexyl)phthalate (6.7 ug/L). Associated positive sample results less than the reporting limit were qualified as not detected (U).

**6. System Monitoring Compounds (SMCs): Acceptable.**

All SMC recoveries were within QC limits.

**7. Blank Spike (BS)/BS Duplicate (BSD) Analysis: Satisfactory.**

BS and BSD analyses were performed per SDG or per matrix per concentration level, whichever was more frequent. All recoveries were within QC limits except hexachlorocyclopentadiene and naphthalene with low recoveries (positive results and sample quantitation limits were qualified as estimated quantities with a low bias [JL or UJL]) and benzyl alcohol, bis(2-ethylhexyl)phthalate, and carbazole with high recoveries (associated positive results were qualified as estimated quantities with a high bias [JH]).

**8. Duplicate Analysis: Satisfactory.**

Spike duplicate analyses were performed per SDG or per matrix per concentration level, whichever was more frequent. All spike duplicate results were within QC limits except several outliers in the BS and BSD. No qualifiers were applied based on the duplicate outliers alone.

**9. Internal Standards: Acceptable.**

All internal standards (IS) were within  $\pm 30$  seconds of the continuing calibration IS retention times. All area counts were within 50 % to 200 % of the continuing calibration area counts.

**10. Overall Assessment of Data for Use**

A total of 67 results were validated in this data memorandum. No sample results were qualified as estimated quantities (J) based on duplicate precision outliers, holding time outliers, incorrect sample containers, or sample temperature outliers. Two sample results were qualified as estimated quantities based on spike accuracy outliers. The following analytes were detected in the method blank: di-n-octyl phthalate, benzyl alcohol, and bis(2-ethylhexyl)phthalate. One sample result was rejected (R).

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the analytical method(s), the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, and/or the Office of Emergency and Remedial Response Publication "National Functional Guidelines for Superfund Organic Methods Data Review, January 2017". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

H - The sample result is biased high.

J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

K - The bias of the sample is not known.

- L - The sample result is biased low.
- N - The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification".
- NJ - The analyte has been "tentatively identified" or "presumptively" as present and the associated numerical value is the estimated concentration in the sample.
- Q - Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.
- R - The data is rejected and unusable. The analyte may or may not be present in the sample.
- U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.

FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87642-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070801

Lab Sample ID: 580-87642-1

Matrix: Water

Lab File ID: 0719A013.D

Analysis Method: 8270D

Date Collected: 07/13/2019 12:01

Extract. Method: 3520C

Date Extracted: 07/16/2019 16:08

Sample wt/vol: 1036.3(mL)

Date Analyzed: 07/19/2019 13:55

Con. Extract Vol.: 2(mL)

Dilution Factor: 1

Injection Volume: 1(uL)

Level: (low/med) Low

% Moisture: \_\_\_\_\_

GPC Cleanup: (Y/N) N

Analysis Batch No.: 306096

Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
108-95-2	Phenol	ND	*	3.9	0.28
111-44-4	Bis(2-chloroethyl)ether	ND	*	0.58	0.096
95-57-8	2-Chlorophenol	ND	*	0.58	0.21
541-73-1	1,3-Dichlorobenzene	ND	*	0.39	0.096
106-46-7	1,4-Dichlorobenzene	ND	*	0.39	0.058
100-51-6	Benzyl alcohol	2.4	J	2.9	0.67
95-50-1	1,2-Dichlorobenzene	ND	*	0.58	0.096
95-48-7	2-Methylphenol	ND	*	0.58	0.096
15831-10-4	3 & 4 Methylphenol	ND	*	0.77	0.17
621-64-7	N-Nitrosodi-n-propylamine	ND	*	0.58	0.096
67-72-1	Hexachloroethane	ND	*	0.96	0.096
98-95-3	Nitrobenzene	ND	*	0.58	0.21
78-59-1	Isophorone	ND	*	0.39	0.096
88-75-5	2-Nitrophenol	ND	*	0.96	0.14
105-67-9	2,4-Dimethylphenol	ND	*	3.9	0.80
65-85-0	Benzoic acid	1.7	J	3.9	0.82
111-91-1	Bis(2-chloroethoxy)methane	ND	*	0.58	0.096
120-83-2	2,4-Dichlorophenol	ND	*	3.9	0.16
120-82-1	1,2,4-Trichlorobenzene	ND	*	0.39	0.039
91-20-3	Naphthalene	ND	*	0.39	0.096
106-47-8	4-Chloroaniline	ND	*	9.6	2.0
87-68-3	Hexachlorobutadiene	ND	*	0.96	0.096
59-50-7	4-Chloro-3-methylphenol	ND	*	0.58	0.096
91-57-6	2-Methylnaphthalene	ND	*	0.39	0.058
77-47-4	Hexachlorocyclopentadiene	ND	*	2.9	0.077
88-06-2	2,4,6-Trichlorophenol	ND	*	0.58	0.096
95-95-4	2,4,5-Trichlorophenol	ND	*	0.39	0.096
91-58-7	2-Chloronaphthalene	ND	*	0.96	0.13
88-74-4	2-Nitroaniline	ND	*	0.58	0.096
131-11-3	Dimethyl phthalate	ND	*	0.58	0.096
208-96-8	Acenaphthylene	ND	*	0.96	0.096
606-20-2	2,6-Dinitrotoluene	ND	*	0.58	0.096
99-09-2	3-Nitroaniline	ND	*	2.9	0.15
83-32-9	Acenaphthene	ND	*	0.39	0.077

FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87642-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070801

Lab Sample ID: 580-87642-1

Matrix: Water

Lab File ID: 0719A013.D

Analysis Method: 8270D

Date Collected: 07/13/2019 12:01

Extract. Method: 3520C

Date Extracted: 07/16/2019 16:08

Sample wt/vol: 1036.3(mL)

Date Analyzed: 07/19/2019 13:55

Con. Extract Vol.: 2(mL)

Dilution Factor: 1

Injection Volume: 1(uL)

Level: (low/med) Low

% Moisture: \_\_\_\_\_

GPC Cleanup: (Y/N) N

Analysis Batch No.: 306096

Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
51-28-5	2,4-Dinitrophenol	ND		19	5.6
100-02-7	4-Nitrophenol	ND		14	0.62
132-64-9	Dibenzofuran	ND		0.39	0.058
121-14-2	2,4-Dinitrotoluene	ND		0.96	0.14
84-66-2	Diethyl phthalate	ND		12	0.69
7005-72-3	4-Chlorophenyl phenyl ether	ND		0.58	0.096
86-73-7	Fluorene	ND		1.9	0.087
100-01-6	4-Nitroaniline	ND		1.9	0.13
534-52-1	4,6-Dinitro-2-methylphenol	ND		9.6	2.5
86-30-6	N-Nitrosodiphenylamine	ND		2.9	0.14
101-55-3	4-Bromophenyl phenyl ether	ND		0.58	0.096
118-74-1	Hexachlorobenzene	ND		0.58	0.096
87-86-5	Pentachlorophenol	ND		9.6	2.4
85-01-8	Phenanthrene	ND		0.96	0.13
120-12-7	Anthracene	ND		14	0.14
84-74-2	Di-n-butyl phthalate	ND		2.9	0.53
206-44-0	Fluoranthene	ND		2.9	0.14
129-00-0	Pyrene	ND		1.9	0.096
85-68-7	Butyl benzyl phthalate	ND		9.6	0.36
91-94-1	3,3'-Dichlorobenzidine	ND		14	3.1
56-55-3	Benzo[a]anthracene	ND		0.96	0.087
218-01-9	Chrysene	ND		0.58	0.16
117-81-7	Bis(2-ethylhexyl) phthalate	ND		14	6.1
117-84-0	Di-n-octyl phthalate	ND		0.96	0.17
50-32-8	Benzo[a]pyrene	ND		0.96	0.15
193-39-5	Indeno[1,2,3-cd]pyrene	ND		0.96	0.048
53-70-3	Dibenz(a,h)anthracene	ND		0.58	0.096
191-24-2	Benzo[g,h,i]perylene	ND		0.96	0.096
86-74-8	Carbazole	ND		0.58	0.096
90-12-0	1-Methylnaphthalene	ND		0.96	0.068
205-99-2	Benzo[b]fluoranthene	ND		0.96	0.13
207-08-9	Benzo[k]fluoranthene	ND		0.96	0.096
108-60-1	bis(chloroisopropyl) ether	ND		0.58	0.20

FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87642-1  
SDG No.: \_\_\_\_\_  
Client Sample ID: 19070801 Lab Sample ID: 580-87642-1  
Matrix: Water Lab File ID: 0719A013.D  
Analysis Method: 8270D Date Collected: 07/13/2019 12:01  
Extract. Method: 3520C Date Extracted: 07/16/2019 16:08  
Sample wt/vol: 1036.3(mL) Date Analyzed: 07/19/2019 13:55  
Con. Extract Vol.: 2(mL) Dilution Factor: 1  
Injection Volume: 1(uL) Level: (low/med) Low  
% Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
Analysis Batch No.: 306096 Units: ug/L

CAS NO.	SURROGATE	%REC	Q	LIMITS
367-12-4	2-Fluorophenol (Surr)	62		36-120
4165-62-2	Phenol-d5 (Surr)	71		38-120
4165-60-0	Nitrobenzene-d5 (Surr)	73		46-129
321-60-8	2-Fluorobiphenyl	69		50-120
118-79-6	2,4,6-Tribromophenol (Surr)	76		48-125
1718-51-0	Terphenyl-d14 (Surr)	102		61-126

*MW 8/4/19*





## ecology and environment, inc.

Global Environmental Specialists

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### MEMORANDUM

DATE: August 15, 2019

TO: Seth Wing, START-IV Project Manager, E & E, Seattle, WA

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington *MW*

SUBJ: **Organic Data Quality Assurance Review, May Creek Removal Action Site, Renton, Washington**

REF: TO: TO-68HE0718F0470 PAN: 1004530.0470.001.01

The data quality assurance review of one water sample collected from the May Creek Removal Action site located in Renton, Washington, has been completed. Analysis for Extended Diesel Range Total Petroleum Hydrocarbons (Ecology Method NWTPH-Dx) was performed by Test America, Inc., Tacoma, Washington. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Manual Process (S2B/4VM).

The sample was numbered: 19070801

#### Data Qualifications:

##### **1. Sample Holding Times: Acceptable.**

The sample was maintained at  $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ . The sample was collected on July 13, 2019, extracted on July 26, 2019, and analyzed by July 27, 2019, therefore meeting QC criteria of less than 14 days between collection and extraction for preserved water samples and less than 40 days between extraction and analysis.

##### **2. Initial Calibration: Acceptable.**

Calculations were verified as correct. All relative percent differences (RPDs) were within the laboratory control limits.

##### **3. Continuing Calibration: Acceptable.**

Calculations were verified as correct. All percent differences (%Ds) were within the laboratory control limits.

##### **4. Blanks: Acceptable.**

A method blank was analyzed for each extraction batch for each matrix and analysis system. Diesel- and motor oil-range TPHs were not detected in the method blank.

##### **5. System Monitoring Compounds (SMC): Acceptable.**

All recoveries of the SMCs were within QC limits.

**6. Blank Spike (BS) and BS Duplicate (BSD): Acceptable.**

BS and BSD recoveries were within QC limits.

**7. Duplicates: Acceptable.**

All spike duplicate results were within QC limits.

**8. Quantitation and Quantitation Limits: Acceptable.**

Sample concentrations were correctly calculated.

**9. Laboratory Contact: Not Required.**

No laboratory contact was required.

**10. Overall Assessment of Data for Use**

A total of two results were validated in this data memorandum. No sample results were qualified as estimated quantities (J) based on duplicate precision outliers, spike accuracy outliers, holding time outliers, incorrect sample containers, or sample temperature outliers. No sample results were rejected (R).

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the analytical method(s), the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, and/or the Office of Emergency and Remedial Response Publication "National Functional Guidelines for Superfund Organic Methods Data Review, January 2017". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

H - The sample result is biased high.

J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

K - The bias of the sample is not known.

L - The sample result is biased low.

Q - Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.

R - The data is rejected and unusable. The analyte may or may not be present in the sample.



- U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.

FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87642-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070801 Lab Sample ID: 580-87642-1  
 Matrix: Water Lab File ID: 010F1301.D  
 Analysis Method: NWTPH-Dx Date Collected: 07/13/2019 12:01  
 Extraction Method: 3510C Date Extracted: 07/26/2019 12:49  
 Sample wt/vol: 1015 (mL) Date Analyzed: 07/27/2019 18:00  
 Con. Extract Vol.: 1.0 (mL) Dilution Factor: 1  
 Injection Volume: 1 (uL) GC Column: ZB-1HT ID: 0.25 (mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 306812 Units: mg/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00163	#2 Diesel (C10-C24)	ND		0.11	0.064
STL00299	Motor Oil (>C24-C36)	ND		0.34	0.095

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	81		50-150

*Handwritten signature and number: MW 8-14-19*



## ecology and environment, inc.

Global Environmental Specialists

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### MEMORANDUM

DATE: August 15, 2019

TO: Seth Wing, START-IV Project Manager, E & E, Seattle, WA

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington *mw*

SUBJ: **Inorganic Data Quality Assurance Review, May Creek Removal Action Site, Renton, Washington**

REF: TO: TO-68HE0718F0470 PAN: 1004530.0470.001.01

The data quality assurance review of 1 water sample collected from the May Creek Removal Action site in Renton, Washington, has been completed. Target Analyte List (TAL) metals analyses (EPA Methods 6010, 6020, and 7471) were performed by Test America, Inc., Tacoma, Washington. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Manual Process (S2B/4VM).

The sample was numbered: 19070801

#### Data Qualifications

##### **1. Sample Holding Times: Acceptable.**

The samples were maintained at  $< 6^{\circ}\text{C}$  (only applies to mercury). The samples were collected on July 13, 2019, and were analyzed by July 24, 2019, therefore meeting QC criteria of less than 6 months between collection, extraction, and analysis (28 days for mercury).

##### **2. Initial and Continuing Calibration: Acceptable.**

A minimum of one calibration standard and a blank were analyzed at the beginning of the ICP analysis sequence and after every 10 samples. No results were greater than 110% of the highest calibration standard. All ICP recoveries were within the QC limits. All AA recoveries were within QC limits and the initial calibration correlation coefficient was  $> 0.995$ .

##### **3. Blanks: Acceptable.**

A preparation blank was analyzed for each 20 samples or per matrix per concentration level. Blanks were analyzed after each Initial or Continuing Calibration Verification. There were no detections in any blanks that potentially affected sample results.

##### **4. ICP Interference Check Sample: Acceptable.**

An Interference Check Sample (ICS) was analyzed at the beginning of each sequence or at least twice every 8 hours, whichever was more frequent. All applicable ICS (solution AB) results were within QC limits of 80% - 120% recovery.

##### **5. Matrix Spike Analysis: Acceptable.**

A matrix spike analysis was performed per SDG or per matrix per concentration level, whichever was more frequent. Spike recoveries were within the QC limits.

**6. Duplicate Analysis: Acceptable.**

A duplicate analysis was performed per SDG or per matrix per concentration level, whichever was more frequent. All duplicate results were within QC limits.

**7. Laboratory Control Sample Analysis: Acceptable.**

A Laboratory Control Sample (LCS) was analyzed per SDG per matrix. All LCS and LCS duplicate results were within the established control limits.

**8. Overall Assessment of Data for Use**

A total of 23 results were validated in this data memorandum. No sample results were qualified as estimated quantities (J) based on duplicate precision outliers, holding time outliers, spike accuracy outliers, incorrect sample containers, sample temperature outliers, or serial dilution outliers. No sample results were rejected (R).

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the analytical method(s), the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, and/or the Office of Emergency and Remedial Response Publication "National Functional Guidelines for Superfund Inorganic Methods Data Review, January 2017". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

- H - The sample result is biased high.
- J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
- K - The bias of the sample is not known.
- L - The sample result is biased low.
- Q - Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.
- R - The data is rejected and unusable. The analyte may or may not be present in the sample.
- U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.

1A-IN  
INORGANIC ANALYSIS DATA SHEET  
METALS

Client Sample ID: 19070801

Lab Sample ID: 580-87642-1

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87642-1

SDG ID.:

Matrix: Water

Date Sampled: 07/13/2019 12:01

Reporting Basis: WET

Date Received: 07/15/2019 10:02

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7439-97-6	Mercury	ND	0.00030	0.00015	mg/L			1	7470A

*mw 8/14/19*

1A-IN  
INORGANIC ANALYSIS DATA SHEET  
METALS - TOTAL RECOVERABLE

Client Sample ID: 19070801

Lab Sample ID: 580-87642-1

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87642-1

SDG ID.:

Matrix: Water

Date Sampled: 07/13/2019 12:01

Reporting Basis: WET

Date Received: 07/15/2019 10:02

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7429-90-5	Aluminum	ND	1.5	0.11	mg/L			1	6010D
7440-70-2	Calcium	ND	1.1	0.16	mg/L			1	6010D
7439-89-6	Iron	ND	0.50	0.14	mg/L			1	6010D
7439-95-4	Magnesium	ND	1.1	0.13	mg/L			1	6010D
7440-09-7	Potassium	ND	3.3	0.41	mg/L			1	6010D
7440-23-5	Sodium	ND	2.0	0.33	mg/L			1	6010D
7440-36-0	Antimony	ND	0.00040	0.00011	mg/L			1	6020B
7440-38-2	Arsenic	0.0027	0.0010	0.00020	mg/L			1	6020B
7440-39-3	Barium	0.00029	0.0012	0.00021	mg/L	J	Q	1	6020B
7440-41-7	Beryllium	ND	0.00040	0.000071	mg/L			1	6020B
7440-43-9	Cadmium	ND	0.00040	0.00010	mg/L			1	6020B
7440-47-3	Chromium	0.00078	0.00040	0.00017	mg/L			1	6020B
7440-48-4	Cobalt	0.000053	0.00040	0.000039	mg/L	J	Q	1	6020B
7440-50-8	Copper	0.00063	0.0020	0.00060	mg/L	J	Q	1	6020B
7439-92-1	Lead	ND	0.00080	0.00020	mg/L			1	6020B
7439-96-5	Manganese	0.0020	0.0020	0.00046	mg/L			1	6020B
7440-02-0	Nickel	0.00018	0.0030	0.00012	mg/L	J	Q	1	6020B
7782-49-2	Selenium	ND	0.0080	0.0021	mg/L			1	6020B
7440-22-4	Silver	ND	0.00040	0.000055	mg/L			1	6020B
7440-28-0	Thallium	ND	0.0010	0.000065	mg/L			1	6020B
7440-62-2	Vanadium	0.0099	0.0040	0.00046	mg/L			1	6020B
7440-66-6	Zinc	0.0032	0.0070	0.0019	mg/L	J	Q	1	6020B

*mm 8/14/19*



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### MEMORANDUM

DATE: August 15, 2019

TO: Seth Wing, START-IV Project Manager, E & E, Seattle, WA

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington *MW*

SUBJ: **Organic Data Quality Assurance Review, May Creek Removal Action Site, Renton, Washington**

REF: TO: TO-68HE0718F0470 PAN: 1004530.0470.001.01

The data quality assurance review of one water sample collected from the May Creek Removal Action site located in Renton, Washington, has been completed. Analyses for Chlorinated Pesticides (EPA Method 8081) and Polychlorinated Biphenyls (PCBs - EPA Method 8082) were performed by Test America, Inc., Tacoma, Washington. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Manual Process (S2B/4VM).

The sample was numbered: 19070801

#### Data Qualifications:

**1. Sample Holding Times: Acceptable.**

The sample was maintained at 0°C to 6°C. The sample was collected on July 13, 2019, extracted on July 19, 2019, and were analyzed by July 24, 2019, therefore meeting QC criteria of less than 14 days between collection and soil sample extraction and less than 40 days between extraction and analysis. There are no holding time limits for Method 8082 PCBs.

**2. Instrument Performance: Acceptable.**

The surrogate retention time percent difference between the initial calibration standards and the remaining standards and samples was  $\leq 0.3\%$  for capillary column analyses.

**3. Initial and Continuing Calibration: Satisfactory.**

All initial calibration relative standard deviations (RSDs) were within QC limits. All continuing calibration % differences (% D) were within QC limits except several low results on one column (no actions were taken as the results for the other column were within QC limits and there were no detections) and some high results (no actions were taken as there were no detections).

**4. Blanks: Acceptable.**

A method blank was prepared at the required frequency of every time samples were extracted for each matrix and for each concentration level, or every 20 samples, whichever is greater, and for each analytical system. No target analytes were detected in the laboratory blanks.

**5. System Monitoring Compounds (SMCs): Satisfactory.**

All recoveries of the SMCs were within QC limits except two high Pesticide SMC results; no actions were taken based on this outlier as there were no Pesticide sample positive results.

**7. Blank Spike (BS) Analyses: Acceptable.**

BS and BS duplicate recoveries were within QC limits.

**8. Duplicates: Acceptable.**

Relative Percent Differences (RPDs) of all spiked analytes were within the required control limits.

**9. Compound Identification: Acceptable.**

All positive sample results were dual-column confirmed with differences between the columns less than 40%.

**10. Target Compound Quantitation and Quantitation Limits: Acceptable.**

Sample results and quantitation limits were correctly calculated.

**11. Laboratory Contact**

No laboratory contact was required.

**12. Overall Assessment**

A total of 28 results were validated in this data memorandum. No sample results were qualified as estimated quantities (J) based on duplicate precision outliers, holding time outliers, spike accuracy outliers, incorrect sample containers, or sample temperature outliers. No sample results were rejected (R).

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result. This updated memorandum provides additional results that weren't provided in the original submittal.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the analytical method(s), the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, and/or the Office of Emergency and Remedial Response Publication "National Functional Guidelines for Superfund Organic Methods Data Review, January 2017". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

H - The sample result is biased high.

J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

K - The bias of the sample is not known.

L - The sample result is biased low.



- Q - Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.
- R - The data is rejected and unusable. The analyte may or may not be present in the sample.
- U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.

FORM I  
PESTICIDES ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87642-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070801 Lab Sample ID: 580-87642-1  
 Matrix: Water Lab File ID: 34G24PST19a0013.d  
 Analysis Method: 8081B Date Collected: 07/13/2019 12:01  
 Extraction Method: 3510C Date Extracted: 07/18/2019 14:08  
 Sample wt/vol: 1053.8(mL) Date Analyzed: 07/24/2019 14:14  
 Con. Extract Vol.: 10.0(mL) Dilution Factor: 1  
 Injection Volume: 1(uL) GC Column: ZB-CLPest-1 ID: 0.25(mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 306493 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
309-00-2	Aldrin	ND		0.023	0.0066
319-84-6	alpha-BHC	ND		0.017	0.0038
319-85-7	beta-BHC	ND		0.020	0.0047
319-86-8	delta-BHC	ND		0.014	0.0047
58-89-9	gamma-BHC (Lindane)	ND		0.019	0.0047
72-54-8	4,4'-DDD	ND		0.014	0.0057
72-55-9	4,4'-DDE	ND		0.0095	0.0028
50-29-3	4,4'-DDT	ND		0.019	0.0047
60-57-1	Dieldrin	ND		0.017	0.0047
959-98-8	Endosulfan I	ND		0.019	0.0028
33213-65-9	Endosulfan II	ND		0.023	0.0047
1031-07-8	Endosulfan sulfate	ND		0.019	0.0028
72-20-8	Endrin	ND		0.011	0.0028
7421-93-4	Endrin aldehyde	ND		0.057	0.032
76-44-8	Heptachlor	ND		0.014	0.0038
1024-57-3	Heptachlor epoxide	ND		0.019	0.0028
72-43-5	Methoxychlor	ND		0.095	0.0047
53494-70-5	Endrin ketone	ND		0.019	0.0019
8001-35-2	Toxaphene	ND		1.9	0.44
5103-71-9	cis-Chlordane	ND		0.026	0.0076
5103-74-2	trans-Chlordane	ND		0.019	0.0028

CAS NO.	SURROGATE	%REC	Q	LIMITS
877-09-8	Tetrachloro-m-xylene	171	X	33-120
2051-24-3	DCB Decachlorobiphenyl	137	X	45-127

FORM I  
PCBS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87642-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070801 Lab Sample ID: 580-87642-1  
 Matrix: Water Lab File ID: 1301007.D  
 Analysis Method: 8082A Date Collected: 07/13/2019 12:01  
 Extraction Method: 3510C Date Extracted: 07/18/2019 14:08  
 Sample wt/vol: 1053.8(mL) Date Analyzed: 07/24/2019 16:03  
 Con. Extract Vol.: 10.0(mL) Dilution Factor: 1  
 Injection Volume: 1(uL) GC Column: ZB-CLPest-1 ID: 0.25(mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 306496 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
12674-11-2	PCB-1016	ND		0.43	0.058
11104-28-2	PCB-1221	ND		0.43	0.071
11141-16-5	PCB-1232	ND		0.43	0.060
53469-21-9	PCB-1242	ND		0.43	0.056
12672-29-6	PCB-1248	ND		0.43	0.049
11097-69-1	PCB-1254	ND		0.43	0.071
11096-82-5	PCB-1260	ND		0.43	0.058

CAS NO.	SURROGATE	%REC	Q	LIMITS
2051-24-3	DCB Decachlorobiphenyl	58		30-140
877-09-8	Tetrachloro-m-xylene	64		29-120

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### MEMORANDUM

DATE: August 15, 2019

TO: Steve Hall, START-IV Project Manager, E & E, Seattle, Washington

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington *MW*

SUBJ: **Organic Data Quality Assurance Review, Gorst Creek Removal Action Site, Port Orchard, Washington**

REF: TO: TO-0520-001 PAN: 1004530.0019.001.02

The data quality assurance review of 2 water samples collected from the Gorst Creek Removal Action site located in Port Orchard, Washington, has been completed. Analysis for Extended Gasoline Range Total Petroleum Hydrocarbons (Ecology Method NWTPH-Gx) analyses was performed by Test America, Inc., Tacoma, Washington. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Manual Process (S2B/4VM).

The samples were numbered: 19070607 19070801

#### Data Qualifications:

##### 1. **Sample Holding Times: Satisfactory.**

The samples were maintained and received within the QC limits of  $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ . The samples were collected on July 13, 2019, were received at the laboratory within 48 hours of collection, and were analyzed by August 1, 2019, therefore exceeding QC criteria of less than 14 days between collection and analysis for soil samples; associated sample results were qualified as estimated quantities with a low bias (JL or UJL).

##### 2. **Initial Calibration: Acceptable.**

Calculations were verified as correct. All relative percent differences (RPDs) were less than or equal to the laboratory control limits.

##### 3. **Continuing Calibration: Acceptable.**

Calculations were verified as correct. All percent differences were less than or equal to the laboratory control limits.

##### 4. **Blanks: Satisfactory.**

A method blank was analyzed at the required frequency of every 12 hours for each matrix, preparation technique, and analysis system. Gasoline-range TPHs was detected one method blank but was not detected in any samples; therefore, no actions were required.

**5. System Monitoring Compounds (SMC): Acceptable.**

All recoveries of the SMCs were within QC limits.

**6. Blank Spikes (BS) and BS Duplicate (BSD) Analyses: Acceptable.**

BS and BSD results were within laboratory QC limits.

**7. Duplicates: Acceptable.**

All spike duplicate results were within laboratory QC limits.

**8. Quantitation and Quantitation Limits: Acceptable.**

Sample quantitation and sample quantitation limits were correctly calculated.

**9. Laboratory Contact: Not Required.**

No laboratory contact was required.

**10. Overall Assessment of Data for Use**

A total of two results were validated in this data memorandum. No sample results were qualified as estimated quantities (J) based on duplicate precision outliers, spike accuracy outliers, incorrect sample containers, or sample temperature outliers. Two sample results were qualified as estimated quantities based on holding time outliers. No sample results were rejected (R).

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the analytical method(s), the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, and/or the Office of Emergency and Remedial Response Publication "National Functional Guidelines for Superfund Organic Methods Data Review, January 2017". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

H - The sample result is biased high.

J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

K - The bias of the sample is not known.

L - The sample result is biased low.

Q - Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.

- R - The data is rejected and unusable. The analyte may or may not be present in the sample.
- U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.

FORM I  
GC VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87642-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070607 Lab Sample ID: 580-87642-2  
 Matrix: Solid Lab File ID: 07311936.D  
 Analysis Method: NWTPH-Gx Date Collected: 07/13/2019 12:01  
 Sample wt/vol: 10(g) Date Analyzed: 08/01/2019 02:39  
 Soil Aliquot Vol: 1.075 (mL) Dilution Factor: 1  
 Soil Extract Vol.: 10(mL) GC Column: RTX-VRX ID: 0.45 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Medium  
 Analysis Batch No.: 307211 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00228	Gasoline	<del>ND</del> <i>ms</i>		5.0	<i>MDL</i> 2.3

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	99		50-150

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FORM I  
GC VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87642-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070801 RA Lab Sample ID: 580-87642-1 RA  
 Matrix: Water Lab File ID: 07291962.D  
 Analysis Method: NWTPH-Gx Date Collected: 07/13/2019 12:01  
 Sample wt/vol: 5(mL) Date Analyzed: 07/30/2019 12:43  
 Soil Aliquot Vol.: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: RTX-VRX ID: 0.45 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 307029 Units: mg/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00228	Gasoline	ND	H/W	0.25	0.10

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	95		50-150
98-08-8	Trifluorotoluene (Surr)	89		50-150

*Mu 8/4/19*





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### MEMORANDUM

DATE: January 8, 2020

TO: Seth Wing, START-IV Project Manager, E & E, Seattle, WA

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington *MW*

SUBJ: **Inorganic Data Quality Assurance Review, May Creek Removal Action Site, Renton, Washington**

REF: TO: TO-68HE0718F0470 PAN: 1004530.0470.001.01

The data quality assurance review of 6 soil samples collected from the May Creek Removal Action site in Renton, Washington, has been completed. Target Analyte List (TAL) metals analyses (EPA Methods 6010 and 7471) were performed by Test America, Inc., Tacoma, Washington. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Manual Process (S2B/4VM).

The samples were numbered:    19070210       19070211       19070212       19070213  
   19070214       19070215

#### Data Qualifications:

##### 1. Sample Holding Times: Acceptable.

The samples were maintained at < 6°C (only applies to mercury). The samples were collected on July 12 and 13, 2019, and were analyzed by July 19, 2019, therefore meeting QC criteria of less than 6 months between collection, extraction, and analysis (28 days for mercury).

##### 2. Initial and Continuing Calibration: Acceptable.

A minimum of one calibration standard and a blank were analyzed at the beginning of the ICP analysis sequence and after every 10 samples. No results were greater than 110% of the highest calibration standard. All ICP recoveries were within the QC limits. All AA recoveries were within QC limits and the initial calibration correlation coefficient was > 0.995.

##### 3. Blanks: Satisfactory.

A preparation blank was analyzed for each 20 samples or per matrix per concentration level. Blanks were analyzed after each Initial or Continuing Calibration Verification. There were no detections in any blanks that potentially affected sample results except cadmium and selenium in the CCB on July 19, 2019 at 11:08. Associated positive sample results less than the reporting limit were qualified as not detected (U).

##### 4. ICP Interference Check Sample: Acceptable.

An Interference Check Sample (ICS) was analyzed at the beginning of each sequence or at least twice every 8 hours, whichever was more frequent. All applicable ICS (solution AB) results were within

QC limits of 80% - 120% recovery.

**5. Duplicate Analysis: Acceptable.**

A laboratory spike duplicate analysis was performed per SDG or per matrix per concentration level, whichever was more frequent. All spike duplicate results were within QC limits.

**6. Laboratory Control Sample Analysis: Acceptable.**

A Laboratory Control Sample (LCS) was analyzed per SDG per matrix. All LCS and LCS duplicate results were within the established control limits.

**7. Overall Assessment of Data for Use**

This memo was updated in January 2020 to include silver results which were inadvertently omitted.

A total of 138 results were validated in this data memorandum. No sample results were qualified as estimated quantities (J) based on duplicate precision outliers, holding time outliers, spike accuracy outliers, incorrect sample containers, sample temperature outliers, or serial dilution outliers. No sample results were rejected (R).

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the analytical method(s), the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, and/or the Office of Emergency and Remedial Response Publication "National Functional Guidelines for Superfund Inorganic Methods Data Review, January 2017". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

- H - The sample result is biased high.
- J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
- K - The bias of the sample is not known.
- L - The sample result is biased low.
- Q - Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.
- R - The data is rejected and unusable. The analyte may or may not be present in the sample.
- U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.

1A-IN  
INORGANIC ANALYSIS DATA SHEET  
METALS

Client Sample ID: 19070210

Lab Sample ID: 580-87648-1

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87648-1

SDG ID.:

Matrix: Solid

Date Sampled: 07/12/2019 10:15

Reporting Basis: DRY

Date Received: 07/15/2019 10:05

% Solids: 76.6

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7429-90-5	Aluminum	21000	70	9.3	mg/Kg			1	6010D
7440-36-0	Antimony	0.46	2.8	0.25	mg/Kg	JQ		1	6010D
7440-38-2	Arsenic	3.7	2.8	0.23	mg/Kg			1	6010D
7440-39-3	Barium	110	0.47	0.074	mg/Kg			1	6010D
7440-41-7	Beryllium	0.25	0.93	0.014	mg/Kg	JQ		1	6010D
7440-43-9	Cadmium	0.13 <i>mw</i>	0.93 <i>U</i>	0.046	mg/Kg	<i>J mw</i>		1	6010D
7440-70-2	Calcium	2600	51	9.3	mg/Kg			1	6010D
7440-47-3	Chromium	24	1.2	0.20	mg/Kg			1	6010D
7440-48-4	Cobalt	6.4	0.93	0.023	mg/Kg			1	6010D
7440-50-8	Copper	18	2.3	0.37	mg/Kg			1	6010D
7439-89-6	Iron	15000	61	14	mg/Kg			1	6010D
7439-92-1	Lead	3.8	1.4	0.21	mg/Kg			1	6010D
7439-95-4	Magnesium	3100	51	7.4	mg/Kg			1	6010D
7439-96-5	Manganese	250	1.9	0.36	mg/Kg			1	6010D
7440-02-0	Nickel	23	0.93	0.096	mg/Kg			1	6010D
7440-09-7	Potassium	610	150	6.3	mg/Kg		<i>P mw</i>	1	6010D
7782-49-2	Selenium	0.56 <i>mw</i>	4.7 <i>U</i>	0.37	mg/Kg	<i>J mw</i>		1	6010D
7440-22-4	Silver	ND <i>mw</i>	2.3 <i>U</i>	0.52	mg/Kg			1	6010D
7440-23-5	Sodium	180	93	18	mg/Kg			1	6010D
7440-28-0	Thallium	ND <i>mw</i>	4.7 <i>U</i>	0.39	mg/Kg			1	6010D
7440-62-2	Vanadium	40	1.9	0.24	mg/Kg			1	6010D
7440-66-6	Zinc	29	3.7	0.89	mg/Kg			1	6010D
7439-97-6	Mercury	0.039	0.031	0.0094	mg/Kg			1	7471A

*mw H2O*

1A-IN  
INORGANIC ANALYSIS DATA SHEET  
METALS

Client Sample ID: 19070211

Lab Sample ID: 580-87648-2

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87648-1

SDG ID.:

Matrix: Solid

Date Sampled: 07/12/2019 10:35

Reporting Basis: DRY

Date Received: 07/15/2019 10:05

% Solids: 64.3

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7429-90-5	Aluminum	19000	83	11	mg/Kg			1	6010D
7440-36-0	Antimony	0.51	3.3	0.29	mg/Kg	J		1	6010D
7440-38-2	Arsenic	6.6	3.3	0.27	mg/Kg			1	6010D
7440-39-3	Barium	110	0.55	0.087	mg/Kg			1	6010D
7440-41-7	Beryllium	0.44	1.1	0.017	mg/Kg	J		1	6010D
7440-43-9	Cadmium	0.27	1.1	0.054	mg/Kg	J		1	6010D
7440-70-2	Calcium	2800	61	11	mg/Kg			1	6010D
7440-47-3	Chromium	34	1.4	0.24	mg/Kg			1	6010D
7440-48-4	Cobalt	11	1.1	0.028	mg/Kg			1	6010D
7440-50-8	Copper	17	2.8	0.44	mg/Kg			1	6010D
7439-89-6	Iron	14000	72	17	mg/Kg			1	6010D
7439-92-1	Lead	8.7	1.7	0.25	mg/Kg			1	6010D
7439-95-4	Magnesium	2300	61	8.8	mg/Kg			1	6010D
7439-96-5	Manganese	300	2.2	0.42	mg/Kg			1	6010D
7440-02-0	Nickel	21	1.1	0.11	mg/Kg			1	6010D
7440-09-7	Potassium	500	180	7.5	mg/Kg			1	6010D
7782-49-2	Selenium	0.45	5.5	0.44	mg/Kg	J		1	6010D
7440-22-4	Silver	ND	2.8	0.62	mg/Kg			1	6010D
7440-23-5	Sodium	140	110	21	mg/Kg			1	6010D
7440-28-0	Thallium	ND	5.5	0.46	mg/Kg			1	6010D
7440-62-2	Vanadium	40	2.2	0.29	mg/Kg			1	6010D
7440-66-6	Zinc	28	4.4	1.1	mg/Kg			1	6010D
7439-97-6	Mercury	0.052	0.034	0.010	mg/Kg			1	7471A

1A-IN  
INORGANIC ANALYSIS DATA SHEET  
METALS

Client Sample ID: 19070212

Lab Sample ID: 580-87648-3

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87648-1

SDG ID.:

Matrix: Solid

Date Sampled: 07/12/2019 16:00

Reporting Basis: DRY

Date Received: 07/15/2019 10:05

% Solids: 87.8

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7429-90-5	Aluminum	19000	60	8.0	mg/Kg			1	6010D
7440-36-0	Antimony	0.32	2.4	0.21	mg/Kg	JQ		1	6010D
7440-38-2	Arsenic	2.4	2.4	0.20	mg/Kg			1	6010D
7440-39-3	Barium	72	0.40	0.063	mg/Kg			1	6010D
7440-41-7	Beryllium	0.18	0.80	0.012	mg/Kg	JQ		1	6010D
7440-43-9	Cadmium	<del>0.080</del> <i>mw</i>	0.80 <i>U</i>	0.039	mg/Kg	<del>JQ</del> <i>mw</i>		1	6010D
7440-70-2	Calcium	2400	44	8.0	mg/Kg			1	6010D
7440-47-3	Chromium	24	1.0	0.17	mg/Kg			1	6010D
7440-48-4	Cobalt	5.6	0.80	0.020	mg/Kg			1	6010D
7440-50-8	Copper	18	2.0	0.32	mg/Kg			1	6010D
7439-89-6	Iron	15000	52	12	mg/Kg			1	6010D
7439-92-1	Lead	1.6	1.2	0.18	mg/Kg			1	6010D
7439-95-4	Magnesium	3400	44	6.3	mg/Kg			1	6010D
7439-96-5	Manganese	170	1.6	0.31	mg/Kg			1	6010D
7440-02-0	Nickel	22	0.80	0.082	mg/Kg			1	6010D
7440-09-7	Potassium	670	130	5.5	mg/Kg		<i>mw</i>	1	6010D
7782-49-2	Selenium	<del>0.51</del> <i>mw</i>	4.0 <i>U</i>	0.32	mg/Kg	<del>mw</del> <i>mw</i>		1	6010D
7440-22-4	Silver	<del>ND</del> <i>mw</i>	2.0 <i>U</i>	0.45	mg/Kg			1	6010D
7440-23-5	Sodium	150	80	15	mg/Kg			1	6010D
7440-28-0	Thallium	<del>ND</del> <i>mw</i>	4.0 <i>U</i>	0.34	mg/Kg			1	6010D
7440-62-2	Vanadium	39	1.6	0.21	mg/Kg			1	6010D
7440-66-6	Zinc	24	3.2	0.76	mg/Kg			1	6010D
7439-97-6	Mercury	0.035	0.024	0.0072	mg/Kg			1	7471A

1A-IN  
INORGANIC ANALYSIS DATA SHEET  
METALS

Client Sample ID: 19070213

Lab Sample ID: 580-87648-4

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87648-1

SDG ID.:

Matrix: Solid

Date Sampled: 07/12/2019 16:30

Reporting Basis: DRY

Date Received: 07/15/2019 10:05

% Solids: 85.3

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7429-90-5	Aluminum	12000	59	7.9	mg/Kg			1	6010D
7440-36-0	Antimony	<del>ND</del>	2.4	U 0.21	mg/Kg			1	6010D
7440-38-2	Arsenic	2.6	2.4	0.20	mg/Kg			1	6010D
7440-39-3	Barium	55	0.40	0.063	mg/Kg			1	6010D
7440-41-7	Beryllium	0.17	0.79	0.012	mg/Kg	J Q		1	6010D
7440-43-9	Cadmium	<del>0.18</del>	0.79	U 0.039	mg/Kg	J Q		1	6010D
7440-70-2	Calcium	5600	44	7.9	mg/Kg			1	6010D
7440-47-3	Chromium	26	1.0	0.17	mg/Kg			1	6010D
7440-48-4	Cobalt	9.0	0.79	0.020	mg/Kg			1	6010D
7440-50-8	Copper	26	2.0	0.32	mg/Kg			1	6010D
7439-89-6	Iron	20000	51	12	mg/Kg			1	6010D
7439-92-1	Lead	2.1	1.2	0.18	mg/Kg			1	6010D
7439-95-4	Magnesium	4900	44	6.3	mg/Kg			1	6010D
7439-96-5	Manganese	360	1.6	0.30	mg/Kg			1	6010D
7440-02-0	Nickel	30	0.79	0.082	mg/Kg			1	6010D
7440-09-7	Potassium	550	130	5.4	mg/Kg			1	6010D
7782-49-2	Selenium	<del>ND</del>	4.0	U 0.31	mg/Kg			1	6010D
7440-22-4	Silver	<del>ND</del>	2.0	U 0.44	mg/Kg			1	6010D
7440-23-5	Sodium	420	79	15	mg/Kg			1	6010D
7440-28-0	Thallium	<del>ND</del>	4.0	U 0.33	mg/Kg			1	6010D
7440-62-2	Vanadium	46	1.6	0.21	mg/Kg			1	6010D
7440-66-6	Zinc	38	3.2	0.76	mg/Kg			1	6010D
7439-97-6	Mercury	0.032	0.024	0.0073	mg/Kg			1	7471A

*mtf820*

1A-IN  
INORGANIC ANALYSIS DATA SHEET  
METALS

Client Sample ID: 19070214

Lab Sample ID: 580-87648-5

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87648-1

SDG ID.:

Matrix: Solid

Date Sampled: 07/13/2019 14:30

Reporting Basis: DRY

Date Received: 07/15/2019 10:05

% Solids: 88.4

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7429-90-5	Aluminum	18000	58	7.6	mg/Kg			1	6010D
7440-36-0	Antimony	0.90	2.3	0.20	mg/Kg	J Q		1	6010D
7440-38-2	Arsenic	5.4	2.3	0.19	mg/Kg			1	6010D
7440-39-3	Barium	84	0.38	0.061	mg/Kg			1	6010D
7440-41-7	Beryllium	0.23	0.77	0.012	mg/Kg	J Q		1	6010D
7440-43-9	Cadmium	<del>0.23</del>	0.77	0.038	mg/Kg	J		1	6010D
7440-70-2	Calcium	4100	42	7.7	mg/Kg			1	6010D
7440-47-3	Chromium	28	1.0	0.17	mg/Kg			1	6010D
7440-48-4	Cobalt	7.7	0.77	0.019	mg/Kg			1	6010D
7440-50-8	Copper	23	1.9	0.31	mg/Kg			1	6010D
7439-89-6	Iron	18000	50	12	mg/Kg			1	6010D
7439-92-1	Lead	17	1.2	0.17	mg/Kg			1	6010D
7439-95-4	Magnesium	4700	42	6.1	mg/Kg			1	6010D
7439-96-5	Manganese	290	1.5	0.29	mg/Kg			1	6010D
7440-02-0	Nickel	31	0.77	0.079	mg/Kg			1	6010D
7440-09-7	Potassium	660	130	5.2	mg/Kg		PM	1	6010D
7782-49-2	Selenium	<del>0.54</del>	3.8	0.30	mg/Kg	J		1	6010D
7440-22-4	Silver	<del>ND</del>	1.9	0.43	mg/Kg			1	6010D
7440-23-5	Sodium	210	77	14	mg/Kg			1	6010D
7440-28-0	Thallium	<del>ND</del>	3.8	0.32	mg/Kg			1	6010D
7440-62-2	Vanadium	44	1.5	0.20	mg/Kg			1	6010D
7440-66-6	Zinc	47	3.1	0.73	mg/Kg			1	6010D
7439-97-6	Mercury	0.053	0.024	0.0071	mg/Kg			1	7471A

*Wf 820*

1A-IN  
INORGANIC ANALYSIS DATA SHEET  
METALS

Client Sample ID: 19070215

Lab Sample ID: 580-87648-6

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87648-1

SDG ID.:

Matrix: Solid

Date Sampled: 07/13/2019 14:40

Reporting Basis: DRY

Date Received: 07/15/2019 10:05

% Solids: 74.3

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7429-90-5	Aluminum	20000	71	9.4	mg/Kg			1	6010D
7440-36-0	Antimony	0.44	2.8	0.25	mg/Kg	J Q		1	6010D
7440-38-2	Arsenic	10	2.8	0.24	mg/Kg			1	6010D
7440-39-3	Barium	99	0.47	0.075	mg/Kg			1	6010D
7440-41-7	Beryllium	0.25	0.95	0.014	mg/Kg	J Q		1	6010D
7440-43-9	Cadmium	0.21 <i>mu</i>	0.95 <i>U</i>	0.046	mg/Kg	J <i>mu</i>		1	6010D
7440-70-2	Calcium	3300	52	9.5	mg/Kg			1	6010D
7440-47-3	Chromium	26	1.2	0.20	mg/Kg			1	6010D
7440-48-4	Cobalt	6.9	0.95	0.024	mg/Kg			1	6010D
7440-50-8	Copper	19	2.4	0.38	mg/Kg			1	6010D
7439-89-6	Iron	23000	62	15	mg/Kg			1	6010D
7439-92-1	Lead	13	1.4	0.21	mg/Kg			1	6010D
7439-95-4	Magnesium	3800	52	7.5	mg/Kg			1	6010D
7439-96-5	Manganese	340	1.9	0.36	mg/Kg			1	6010D
7440-02-0	Nickel	26	0.95	0.098	mg/Kg			1	6010D
7440-09-7	Potassium	660	160	6.5	mg/Kg		<i>mu</i>	1	6010D
7782-49-2	Selenium	0.70 <i>mu</i>	4.7 <i>U</i>	0.38	mg/Kg	J <i>mu</i>		1	6010D
7440-22-4	Silver	ND <i>mu</i>	2.4 <i>U</i>	0.53	mg/Kg			1	6010D
7440-23-5	Sodium	170	95	18	mg/Kg			1	6010D
7440-28-0	Thallium	ND <i>mu</i>	4.7 <i>U</i>	0.40	mg/Kg			1	6010D
7440-62-2	Vanadium	41	1.9	0.25	mg/Kg			1	6010D
7440-66-6	Zinc	36	3.8	0.91	mg/Kg			1	6010D
7439-97-6	Mercury	0.045	0.025	0.0075	mg/Kg			1	7471A

*mu 1-870*





## ecology and environment, inc.

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### MEMORANDUM

DATE: August 25, 2019

TO: Seth Wing, START-IV Project Manager, E & E, Seattle, WA

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington *MW*

SUBJ: Organic Data Quality Assurance Review, May Creek Removal Action Site, Renton, Washington

REF: TO: 10-68HE0718F0470 EAN: 1004550.0470.001.01

The data quality assurance review of 7 soil samples collected from the May Creek Removal Action site in Renton, Washington, has been completed. Volatile Organic Compound (VOC) analysis (EPA Method 8260) was performed by Test America, Inc., Tacoma, Washington. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Manual Process (S2B/4VM).

The samples were numbered:	19070210	19070211	19070212	19070213
	19070214	19070215	19070606	

#### Data Qualifications:

##### 1. Sample Holding Times: Acceptable.

The samples were maintained within the QC limits of  $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ . The samples were collected on July 12 and 13, 2019, were received at the laboratory within 48 hours of collection, and were analyzed by July 26, 2019, therefore meeting QC criteria of less than 14 days between collection and analysis for preserved water samples.

##### 2. Tuning: Acceptable.

Tuning was performed at the beginning of each 12-hour analysis sequence. All results were within QC limits.

##### 3. Initial Calibration: Acceptable.

All average Relative Response Factors (RRFs) were within the QC limits. All Relative Standard Deviations (RSDs) and/or correlation coefficients were within the QC limits.

##### 4. Continuing Calibration: Satisfactory.

All RRFs were within the QC limits. Applicable percent differences were within QC limits except dichlorodifluoromethane with a low recovery; positive results and sample quantitation limits associated with low recoveries were qualified as estimated quantities with a low bias (JL or UJL).

##### 5. Blanks: Acceptable.

A method blank was analyzed for each 20 sample batch per matrix. There were no detections in any method blank. There were no detections in the trip blank.

**6. System Monitoring Compounds (SMCs): Acceptable.**

All SMC recoveries were within QC limits except one high recovery in sample 19070606; no actions were taken as there were no detections in this sample.

**7. Blank Spike (BS)/BS Duplicate (BSD) Analysis: Acceptable.**

BS and BSD analyses were performed per SDG or per matrix per concentration level, whichever was more frequent. All recoveries were within QC limits.

**8. Spike Duplicate Analysis: Satisfactory.**

Spike duplicate analyses were performed per SDG or per matrix per concentration level, whichever was more frequent. All spike duplicate results were within QC limits except o-xylene; no actions were taken based on the spike duplicate outlier alone.

**9. Internal Standards: Acceptable.**

All internal standards were within  $\pm 30$  seconds of the continuing calibration internal standard retention times. All area counts were within 50 % to 200 % of the continuing calibration area counts.

**10. Overall Assessment of Data for Use**

The following samples were provided to the laboratory with a higher initial weight than required by the reference method: 19070210, 19070211, 19070212, 19070213, 19070214, and 19070215. The amount provided was above this range; associated sample results were qualified as estimated quantities with an unknown bias (JK or UJK).

A total of 420 results were validated in this data memorandum. No sample results were qualified as estimated quantities (J) based on duplicate precision outliers, spike accuracy outliers, holding time outliers, incorrect sample containers, or sample temperature outliers. No sample results were rejected (R).

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the analytical method(s), the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, and/or the Office of Emergency and Remedial Response Publication "National Functional Guidelines for Superfund Organic Methods Data Review, January 2017". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

H - The sample result is biased high.

J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

K - The bias of the sample is not known.

L - The sample result is biased low.

- N - The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification".
- NJ - The analyte has been "tentatively identified" or "presumptively" as present and the associated numerical value is the estimated concentration in the sample.
- Q - Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.
- R - The data is rejected and unusable. The analyte may or may not be present in the sample.
- U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87648-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070210

Lab Sample ID: 580-87648-1

Matrix: Solid

Lab File ID: 072519\_0040.D

Analysis Method: 8260C

Date Collected: 07/12/2019 10:15

Sample wt/vol: 7.74(g)

Date Analyzed: 07/26/2019 03:41

Soil Aliquot Vol: \_\_\_\_\_

Dilution Factor: 1

Soil Extract Vol.: \_\_\_\_\_

GC Column: DB-VRX ID: 0.25(mm)

% Moisture: 23.4

Level: (low/med) Low

Analysis Batch No.: 306671

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-71-8	Dichlorodifluoromethane	ND		1.7	0.41
74-87-3	Chloromethane	ND		4.2	0.78
75-01-4	Vinyl chloride	ND		1.7	0.25
74-83-9	Bromomethane	ND		0.84	0.18
75-00-3	Chloroethane	ND		8.4	1.3
75-69-4	Trichlorofluoromethane	ND		1.7	0.25
75-35-4	1,1-Dichloroethene	ND		4.2	0.93
75-09-2	Methylene Chloride	ND		34	8.3
156-60-5	trans-1,2-Dichloroethene	ND		1.7	0.34
75-34-3	1,1-Dichloroethane	ND		0.84	0.16
594-20-7	2,2-Dichloropropane	ND		4.2	0.76
156-59-2	cis-1,2-Dichloroethene	ND		2.5	0.51
74-97-5	Bromochloromethane	ND		1.7	0.21
67-66-3	Chloroform	ND		1.7	0.25
71-55-6	1,1,1-Trichloroethane	ND		1.7	0.25
56-23-5	Carbon tetrachloride	ND		1.7	0.25
563-58-6	1,1-Dichloropropene	ND		1.7	0.25
71-43-2	Benzene	ND		1.7	0.33
107-06-2	1,2-Dichloroethane	ND		0.84	0.17
79-01-6	Trichloroethene	ND		1.7	0.25
78-87-5	1,2-Dichloropropane	ND		1.7	0.34
74-95-3	Dibromomethane	ND		0.84	0.14
75-27-4	Bromodichloromethane	ND		0.84	0.15
10061-01-5	cis-1,3-Dichloropropene	ND		0.84	0.17
108-88-3	Toluene	ND		8.4	1.1
10061-02-6	trans-1,3-Dichloropropene	ND		8.4	1.2
79-00-5	1,1,2-Trichloroethane	ND		1.7	0.21
127-18-4	Tetrachloroethene	ND		1.7	0.34
142-28-9	1,3-Dichloropropane	ND		1.7	0.19
124-48-1	Dibromochloromethane	ND		1.3	0.23
106-93-4	1,2-Dibromoethane	ND		0.84	0.17
108-90-7	Chlorobenzene	ND		1.7	0.21
100-41-4	Ethylbenzene	ND		1.7	0.35
630-20-6	1,1,1,2-Tetrachloroethane	ND		2.5	0.50
79-34-5	1,1,2,2-Tetrachloroethane	ND		3.4	0.76
179601-23-1	m-Xylene & p-Xylene	ND		8.4	1.4

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87648-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070210

Lab Sample ID: 580-87648-1

Matrix: Solid

Lab File ID: 072519\_0040.D

Analysis Method: 8260C

Date Collected: 07/12/2019 10:15

Sample wt/vol: 7.74(g)

Date Analyzed: 07/26/2019 03:41

Soil Aliquot Vol: \_\_\_\_\_

Dilution Factor: 1

Soil Extract Vol.: \_\_\_\_\_

GC Column: DB-VRX ID: 0.25 (mm)

% Moisture: 23.4

Level: (low/med) Low

Analysis Batch No.: 306671

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
95-47-6	o-Xylene	ND	<i>mm</i>	4.2	0.78
100-42-5	Styrene	ND		2.5	0.62
75-25-2	Bromoform	ND		4.2	0.71
98-82-8	Isopropylbenzene	ND		1.7	0.39
108-86-1	Bromobenzene	ND		8.4	0.84
103-65-1	N-Propylbenzene	ND		4.2	0.64
96-18-4	1,2,3-Trichloropropane	ND		4.2	0.84
95-49-8	2-Chlorotoluene	ND		4.2	0.78
108-67-8	1,3,5-Trimethylbenzene	ND		4.2	0.68
106-43-4	4-Chlorotoluene	ND		4.2	0.84
98-06-6	t-Butylbenzene	ND		2.5	0.56
95-63-6	1,2,4-Trimethylbenzene	ND		4.2	1.0
135-98-8	sec-Butylbenzene	ND		2.5	0.56
541-73-1	1,3-Dichlorobenzene	ND		4.2	0.93
99-87-6	4-Isopropyltoluene	ND		1.7	0.34
106-46-7	1,4-Dichlorobenzene	ND		4.2	0.83
104-51-8	n-Butylbenzene	ND		2.5	0.53
95-50-1	1,2-Dichlorobenzene	ND		8.4	1.1
96-12-8	1,2-Dibromo-3-Chloropropane	ND		8.4	1.3
120-82-1	1,2,4-Trichlorobenzene	ND		1.7	0.35
87-61-6	1,2,3-Trichlorobenzene	ND		2.5	0.51
87-68-3	Hexachlorobutadiene	ND		2.5	0.51
91-20-3	Naphthalene	ND		8.4	1.5
1634-04-4	Methyl tert-butyl ether	ND		1.7	0.25

CAS NO.	SURROGATE	%REC	Q	LIMITS
2037-26-5	Toluene-d8 (Surr)	100		80-120
460-00-4	4-Bromofluorobenzene (Surr)	104		80-120
1868-53-7	Dibromofluoromethane (Surr)	103		80-120
98-08-8	Trifluorotoluene (Surr)	96		80-120
17060-07-0	1,2-Dichloroethane-d4 (Surr)	118		80-121

*mm 8/4/19*

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87648-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070211

Lab Sample ID: 580-87648-2

Matrix: Solid

Lab File ID: 072519\_0041.D

Analysis Method: 8260C

Date Collected: 07/12/2019 10:35

Sample wt/vol: 6.885(g)

Date Analyzed: 07/26/2019 04:06

Soil Aliquot Vol: \_\_\_\_\_

Dilution Factor: 1

Soil Extract Vol.: \_\_\_\_\_

GC Column: DB-VRX ID: 0.25 (mm)

% Moisture: 35.7

Level: (low/med) Low

Analysis Batch No.: 306671

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-71-8	Dichlorodifluoromethane	ND		2.3	0.55
74-87-3	Chloromethane	ND		5.7	1.1
75-01-4	Vinyl chloride	ND		2.3	0.34
74-83-9	Bromomethane	ND		1.1	0.24
75-00-3	Chloroethane	ND		11	1.8
75-69-4	Trichlorofluoromethane	ND		2.3	0.34
75-35-4	1,1-Dichloroethene	ND		5.7	1.2
75-09-2	Methylene Chloride	ND		45	11
156-60-5	trans-1,2-Dichloroethene	ND		2.3	0.45
75-34-3	1,1-Dichloroethane	ND		1.1	0.21
594-20-7	2,2-Dichloropropane	ND		5.7	1.0
156-59-2	cis-1,2-Dichloroethene	ND		3.4	0.68
74-97-5	Bromochloromethane	ND		2.3	0.28
67-66-3	Chloroform	ND		2.3	0.34
71-55-6	1,1,1-Trichloroethane	ND		2.3	0.34
56-23-5	Carbon tetrachloride	ND		2.3	0.34
563-58-6	1,1-Dichloropropene	ND		2.3	0.34
71-43-2	Benzene	ND		2.3	0.44
107-06-2	1,2-Dichloroethane	ND		1.1	0.23
79-01-6	Trichloroethene	ND		2.3	0.34
78-87-5	1,2-Dichloropropane	ND		2.3	0.45
74-95-3	Dibromomethane	ND		1.1	0.19
75-27-4	Bromodichloromethane	ND		1.1	0.20
10061-01-5	cis-1,3-Dichloropropene	ND		1.1	0.23
108-88-3	Toluene	ND		11	1.5
10061-02-6	trans-1,3-Dichloropropene	ND		11	1.6
79-00-5	1,1,2-Trichloroethane	ND		2.3	0.28
127-18-4	Tetrachloroethene	ND		2.3	0.45
142-28-9	1,3-Dichloropropane	ND		2.3	0.26
124-48-1	Dibromochloromethane	ND		1.7	0.31
106-93-4	1,2-Dibromoethane	ND		1.1	0.23
108-90-7	Chlorobenzene	ND		2.3	0.28
100-41-4	Ethylbenzene	ND		2.3	0.46
630-20-6	1,1,1,2-Tetrachloroethane	ND		3.4	0.67
79-34-5	1,1,2,2-Tetrachloroethane	ND		4.5	1.0
179601-23-1	m-Xylene & p-Xylene	ND		11	1.9

*Handwritten signature/initials*

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87648-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070211

Lab Sample ID: 580-87648-2

Matrix: Solid

Lab File ID: 072519\_0041.D

Analysis Method: 8260C

Date Collected: 07/12/2019 10:35

Sample wt/vol: 6.885(g)

Date Analyzed: 07/26/2019 04:06

Soil Aliquot Vol: \_\_\_\_\_

Dilution Factor: 1

Soil Extract Vol.: \_\_\_\_\_

GC Column: DB-VRX ID: 0.25 (mm)

% Moisture: 35.7

Level: (low/med) Low

Analysis Batch No.: 306671

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
95-47-6	o-Xylene	ND	1/11	5.7	1.0
100-42-5	Styrene	ND		3.4	0.84
75-25-2	Bromoform	ND		5.7	0.95
98-82-8	Isopropylbenzene	ND		2.3	0.52
108-86-1	Bromobenzene	ND		11	1.1
103-65-1	N-Propylbenzene	ND		5.7	0.86
96-18-4	1,2,3-Trichloropropane	ND		5.7	1.1
95-49-8	2-Chlorotoluene	ND		5.7	1.1
108-67-8	1,3,5-Trimethylbenzene	ND		5.7	0.92
106-43-4	4-Chlorotoluene	ND		5.7	1.1
98-06-6	t-Butylbenzene	ND		3.4	0.75
95-63-6	1,2,4-Trimethylbenzene	ND		5.7	1.4
135-98-8	sec-Butylbenzene	ND		3.4	0.76
541-73-1	1,3-Dichlorobenzene	ND		5.7	1.2
99-87-6	4-Isopropyltoluene	ND		2.3	0.45
106-46-7	1,4-Dichlorobenzene	ND		5.7	1.1
104-51-8	n-Butylbenzene	ND		3.4	0.71
95-50-1	1,2-Dichlorobenzene	ND		11	1.5
96-12-8	1,2-Dibromo-3-Chloropropane	ND		11	1.8
120-82-1	1,2,4-Trichlorobenzene	ND		2.3	0.47
87-61-6	1,2,3-Trichlorobenzene	ND		3.4	0.68
87-68-3	Hexachlorobutadiene	ND		3.4	0.68
91-20-3	Naphthalene	ND		11	2.0
1634-04-4	Methyl tert-butyl ether	ND		2.3	0.34

CAS NO.	SURROGATE	%REC	Q	LIMITS
2037-26-5	Toluene-d8 (Surr)	100		80-120
460-00-4	4-Bromofluorobenzene (Surr)	100		80-120
1868-53-7	Dibromofluoromethane (Surr)	101		80-120
98-08-8	Trifluorotoluene (Surr)	96		80-120
17060-07-0	1,2-Dichloroethane-d4 (Surr)	119		80-121

*MW 8/14/19*

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87648-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070212

Lab Sample ID: 580-87648-3

Matrix: Solid

Lab File ID: 072519\_0042.D

Analysis Method: 8260C

Date Collected: 07/12/2019 16:00

Sample wt/vol: 6.878(g)

Date Analyzed: 07/26/2019 04:30

Soil Aliquot Vol: \_\_\_\_\_

Dilution Factor: 1

Soil Extract Vol.: \_\_\_\_\_

GC Column: DB-VRX ID: 0.25 (mm)

% Moisture: 12.2

Level: (low/med) Low

Analysis Batch No.: 306671

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-71-8	Dichlorodifluoromethane	ND		1.7	0.41
74-87-3	Chloromethane	ND		4.1	0.77
75-01-4	Vinyl chloride	ND		1.7	0.25
74-83-9	Bromomethane	ND		0.83	0.17
75-00-3	Chloroethane	ND		8.3	1.3
75-69-4	Trichlorofluoromethane	ND		1.7	0.25
75-35-4	1,1-Dichloroethene	ND		4.1	0.91
75-09-2	Methylene Chloride	ND		33	8.2
156-60-5	trans-1,2-Dichloroethene	ND		1.7	0.33
75-34-3	1,1-Dichloroethane	ND		0.83	0.16
594-20-7	2,2-Dichloropropane	ND		4.1	0.75
156-59-2	cis-1,2-Dichloroethene	ND		2.5	0.50
74-97-5	Bromochloromethane	ND		1.7	0.21
67-66-3	Chloroform	ND		1.7	0.25
71-55-6	1,1,1-Trichloroethane	ND		1.7	0.25
56-23-5	Carbon tetrachloride	ND		1.7	0.25
563-58-6	1,1-Dichloropropene	ND		1.7	0.25
71-43-2	Benzene	ND		1.7	0.32
107-06-2	1,2-Dichloroethane	ND		0.83	0.17
79-01-6	Trichloroethene	ND		1.7	0.25
78-87-5	1,2-Dichloropropane	ND		1.7	0.33
74-95-3	Dibromomethane	ND		0.83	0.14
75-27-4	Bromodichloromethane	ND		0.83	0.15
10061-01-5	cis-1,3-Dichloropropene	ND		0.83	0.17
108-88-3	Toluene	ND		8.3	1.1
10061-02-6	trans-1,3-Dichloropropene	ND		8.3	1.2
79-00-5	1,1,2-Trichloroethane	ND		1.7	0.21
127-18-4	Tetrachloroethene	ND		1.7	0.33
142-28-9	1,3-Dichloropropane	ND		1.7	0.19
124-48-1	Dibromochloromethane	ND		1.2	0.22
106-93-4	1,2-Dibromoethane	ND		0.83	0.17
108-90-7	Chlorobenzene	ND		1.7	0.21
100-41-4	Ethylbenzene	ND		1.7	0.34
630-20-6	1,1,1,2-Tetrachloroethane	ND		2.5	0.49
79-34-5	1,1,2,2-Tetrachloroethane	ND		3.3	0.75
179601-23-1	m-Xylene & p-Xylene	ND		8.3	1.4



FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87648-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070212 Lab Sample ID: 580-87648-3  
 Matrix: Solid Lab File ID: 072519\_0042.D  
 Analysis Method: 8260C Date Collected: 07/12/2019 16:00  
 Sample wt/vol: 6.878(g) Date Analyzed: 07/26/2019 04:30  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: DB-VRX ID: 0.25 (mm)  
 % Moisture: 12.2 Level: (low/med) Low  
 Analysis Batch No.: 306671 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
95-47-6	o-Xylene	ND	<i>Mu</i>	4.1	0.76
100-42-5	Styrene	ND		2.5	0.61
75-25-2	Bromoform	ND		4.1	0.70
98-82-8	Isopropylbenzene	ND		1.7	0.38
108-86-1	Bromobenzene	ND		8.3	0.83
103-65-1	N-Propylbenzene	ND		4.1	0.63
96-18-4	1,2,3-Trichloropropane	ND		4.1	0.83
95-49-8	2-Chlorotoluene	ND		4.1	0.77
108-67-8	1,3,5-Trimethylbenzene	ND		4.1	0.67
106-43-4	4-Chlorotoluene	ND		4.1	0.83
98-06-6	t-Butylbenzene	ND		2.5	0.55
95-63-6	1,2,4-Trimethylbenzene	ND		4.1	0.99
135-98-8	sec-Butylbenzene	ND		2.5	0.55
541-73-1	1,3-Dichlorobenzene	ND		4.1	0.91
99-87-6	4-Isopropyltoluene	ND		1.7	0.33
106-46-7	1,4-Dichlorobenzene	ND		4.1	0.81
104-51-8	n-Butylbenzene	ND		2.5	0.52
95-50-1	1,2-Dichlorobenzene	ND		8.3	1.1
96-12-8	1,2-Dibromo-3-Chloropropane	ND		8.3	1.3
120-82-1	1,2,4-Trichlorobenzene	ND		1.7	0.35
87-61-6	1,2,3-Trichlorobenzene	ND		2.5	0.50
87-68-3	Hexachlorobutadiene	ND		2.5	0.50
91-20-3	Naphthalene	ND		8.3	1.5
1634-04-4	Methyl tert-butyl ether	ND		1.7	0.25

CAS NO.	SURROGATE	%REC	Q	LIMITS
2037-26-5	Toluene-d8 (Surr)	100		80-120
460-00-4	4-Bromofluorobenzene (Surr)	106		80-120
1868-53-7	Dibromofluoromethane (Surr)	102		80-120
98-08-8	Trifluorotoluene (Surr)	95		80-120
17060-07-0	1,2-Dichloroethane-d4 (Surr)	115		80-121

*Mu 8/14/19*

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87648-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070213 Lab Sample ID: 580-87648-4  
 Matrix: Solid Lab File ID: 072519\_0043.D  
 Analysis Method: 8260C Date Collected: 07/12/2019 16:30  
 Sample wt/vol: 6.613(g) Date Analyzed: 07/26/2019 04:55  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: DB-VRX ID: 0.25 (mm)  
 % Moisture: 14.7 Level: (low/med) Low  
 Analysis Batch No.: 306671 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-71-8	Dichlorodifluoromethane	ND		1.8	0.43
74-87-3	Chloromethane	ND		4.4	0.82
75-01-4	Vinyl chloride	ND		1.8	0.27
74-83-9	Bromomethane	ND		0.89	0.19
75-00-3	Chloroethane	ND		8.9	1.4
75-69-4	Trichlorofluoromethane	ND		1.8	0.27
75-35-4	1,1-Dichloroethene	ND		4.4	0.97
75-09-2	Methylene Chloride	14	J Q	35	8.8
156-60-5	trans-1,2-Dichloroethene	ND		1.8	0.35
75-34-3	1,1-Dichloroethane	ND		0.89	0.17
594-20-7	2,2-Dichloropropane	ND		4.4	0.80
156-59-2	cis-1,2-Dichloroethene	ND		2.7	0.53
74-97-5	Bromochloromethane	ND		1.8	0.22
67-66-3	Chloroform	ND		1.8	0.27
71-55-6	1,1,1-Trichloroethane	ND		1.8	0.27
56-23-5	Carbon tetrachloride	ND		1.8	0.27
563-58-6	1,1-Dichloropropene	ND		1.8	0.27
71-43-2	Benzene	ND		1.8	0.35
107-06-2	1,2-Dichloroethane	ND		0.89	0.18
79-01-6	Trichloroethene	ND		1.8	0.27
78-87-5	1,2-Dichloropropane	ND		1.8	0.35
74-95-3	Dibromomethane	ND		0.89	0.15
75-27-4	Bromodichloromethane	ND		0.89	0.16
10061-01-5	cis-1,3-Dichloropropene	ND		0.89	0.18
108-88-3	Toluene	ND		8.9	1.2
10061-02-6	trans-1,3-Dichloropropene	ND		8.9	1.2
79-00-5	1,1,2-Trichloroethane	ND		1.8	0.22
127-18-4	Tetrachloroethene	ND		1.8	0.35
142-28-9	1,3-Dichloropropane	ND		1.8	0.20
124-48-1	Dibromochloromethane	ND		1.3	0.24
106-93-4	1,2-Dibromoethane	ND		0.89	0.18
108-90-7	Chlorobenzene	ND		1.8	0.22
100-41-4	Ethylbenzene	ND		1.8	0.36
630-20-6	1,1,1,2-Tetrachloroethane	ND		2.7	0.52
79-34-5	1,1,2,2-Tetrachloroethane	ND		3.5	0.80
179601-23-1	m-Xylene & p-Xylene	ND		8.9	1.5

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87648-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070213 Lab Sample ID: 580-87648-4  
 Matrix: Solid Lab File ID: 072519\_0043.D  
 Analysis Method: 8260C Date Collected: 07/12/2019 16:30  
 Sample wt/vol: 6.613(g) Date Analyzed: 07/26/2019 04:55  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: DB-VRX ID: 0.25 (mm)  
 % Moisture: 14.7 Level: (low/med) Low  
 Analysis Batch No.: 306671 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
95-47-6	o-Xylene	ND	1/10	4.4	0.82
100-42-5	Styrene	ND		2.7	0.66
75-25-2	Bromoform	ND		4.4	0.74
98-82-8	Isopropylbenzene	ND		1.8	0.41
108-86-1	Bromobenzene	ND		8.9	0.89
103-65-1	N-Propylbenzene	ND		4.4	0.67
96-18-4	1,2,3-Trichloropropane	ND		4.4	0.89
95-49-8	2-Chlorotoluene	ND		4.4	0.82
108-67-8	1,3,5-Trimethylbenzene	ND		4.4	0.72
106-43-4	4-Chlorotoluene	ND		4.4	0.89
98-06-6	t-Butylbenzene	ND		2.7	0.58
95-63-6	1,2,4-Trimethylbenzene	ND		4.4	1.1
135-98-8	sec-Butylbenzene	ND		2.7	0.59
541-73-1	1,3-Dichlorobenzene	ND		4.4	0.97
99-87-6	4-Isopropyltoluene	ND		1.8	0.35
106-46-7	1,4-Dichlorobenzene	ND		4.4	0.87
104-51-8	n-Butylbenzene	ND		2.7	0.56
95-50-1	1,2-Dichlorobenzene	ND		8.9	1.2
96-12-8	1,2-Dibromo-3-Chloropropane	ND		8.9	1.4
120-82-1	1,2,4-Trichlorobenzene	ND		1.8	0.37
87-61-6	1,2,3-Trichlorobenzene	ND		2.7	0.53
87-68-3	Hexachlorobutadiene	ND		2.7	0.53
91-20-3	Naphthalene	ND		8.9	1.6
1634-04-4	Methyl tert-butyl ether	ND		1.8	0.27

CAS NO.	SURROGATE	%REC	Q	LIMITS
2037-26-5	Toluene-d8 (Surr)	100		80-120
460-00-4	4-Bromofluorobenzene (Surr)	105		80-120
1868-53-7	Dibromofluoromethane (Surr)	107		80-120
98-08-8	Trifluorotoluene (Surr)	97		80-120
17060-07-0	1,2-Dichloroethane-d4 (Surr)	118		80-121

*mu 8/4/19*

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87648-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070214

Lab Sample ID: 580-87648-5

Matrix: Solid

Lab File ID: 072519\_0044.D

Analysis Method: 8260C

Date Collected: 07/13/2019 14:30

Sample wt/vol: 6.615(g)

Date Analyzed: 07/26/2019 05:20

Soil Aliquot Vol: \_\_\_\_\_

Dilution Factor: 1

Soil Extract Vol.: \_\_\_\_\_

GC Column: DB-VRX ID: 0.25 (mm)

% Moisture: 11.6

Level: (low/med) Low

Analysis Batch No.: 306671

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-71-8	Dichlorodifluoromethane	ND		1.7	0.42
74-87-3	Chloromethane	ND		4.3	0.80
75-01-4	Vinyl chloride	ND		1.7	0.26
74-83-9	Bromomethane	ND		0.85	0.18
75-00-3	Chloroethane	ND		8.5	1.4
75-69-4	Trichlorofluoromethane	ND		1.7	0.26
75-35-4	1,1-Dichloroethene	ND		4.3	0.94
75-09-2	Methylene Chloride	13	JQ	34	8.5
156-60-5	trans-1,2-Dichloroethene	ND		1.7	0.34
75-34-3	1,1-Dichloroethane	ND		0.85	0.16
594-20-7	2,2-Dichloropropane	ND		4.3	0.77
156-59-2	cis-1,2-Dichloroethene	ND		2.6	0.51
74-97-5	Bromochloromethane	ND		1.7	0.21
67-66-3	Chloroform	ND		1.7	0.26
71-55-6	1,1,1-Trichloroethane	ND		1.7	0.26
56-23-5	Carbon tetrachloride	ND		1.7	0.26
563-58-6	1,1-Dichloropropene	ND		1.7	0.26
71-43-2	Benzene	ND		1.7	0.33
107-06-2	1,2-Dichloroethane	ND		0.85	0.17
79-01-6	Trichloroethene	ND		1.7	0.26
78-87-5	1,2-Dichloropropane	ND		1.7	0.34
74-95-3	Dibromomethane	ND		0.85	0.15
75-27-4	Bromodichloromethane	ND		0.85	0.15
10061-01-5	cis-1,3-Dichloropropene	ND		0.85	0.17
108-88-3	Toluene	ND		8.5	1.1
10061-02-6	trans-1,3-Dichloropropene	ND		8.5	1.2
79-00-5	1,1,2-Trichloroethane	ND		1.7	0.21
127-18-4	Tetrachloroethene	ND		1.7	0.34
142-28-9	1,3-Dichloropropane	ND		1.7	0.20
124-48-1	Dibromochloromethane	ND		1.3	0.23
106-93-4	1,2-Dibromoethane	ND		0.85	0.17
108-90-7	Chlorobenzene	ND		1.7	0.21
100-41-4	Ethylbenzene	ND		1.7	0.35
630-20-6	1,1,1,2-Tetrachloroethane	ND		2.6	0.50
79-34-5	1,1,2,2-Tetrachloroethane	ND		3.4	0.77
179601-23-1	m-Xylene & p-Xylene	ND		8.5	1.5

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87648-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070214 Lab Sample ID: 580-87648-5  
 Matrix: Solid Lab File ID: 072519\_0044.D  
 Analysis Method: 8260C Date Collected: 07/13/2019 14:30  
 Sample wt/vol: 6.615(g) Date Analyzed: 07/26/2019 05:20  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: DB-VRX ID: 0.25 (mm)  
 % Moisture: 11.6 Level: (low/med) Low  
 Analysis Batch No.: 306671 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
95-47-6	o-Xylene	ND	<i>mw</i>	4.3	0.79
100-42-5	Styrene	ND		2.6	0.63
75-25-2	Bromoform	ND		4.3	0.72
98-82-8	Isopropylbenzene	ND		1.7	0.39
108-86-1	Bromobenzene	ND		8.5	0.85
103-65-1	N-Propylbenzene	ND		4.3	0.65
96-18-4	1,2,3-Trichloropropane	ND		4.3	0.85
95-49-8	2-Chlorotoluene	ND		4.3	0.80
108-67-8	1,3,5-Trimethylbenzene	ND		4.3	0.69
106-43-4	4-Chlorotoluene	ND		4.3	0.85
98-06-6	t-Butylbenzene	ND		2.6	0.56
95-63-6	1,2,4-Trimethylbenzene	ND		4.3	1.0
135-98-8	sec-Butylbenzene	ND		2.6	0.57
541-73-1	1,3-Dichlorobenzene	ND		4.3	0.94
99-87-6	4-Isopropyltoluene	ND		1.7	0.34
106-46-7	1,4-Dichlorobenzene	ND		4.3	0.84
104-51-8	n-Butylbenzene	ND		2.6	0.54
95-50-1	1,2-Dichlorobenzene	ND		8.5	1.1
96-12-8	1,2-Dibromo-3-Chloropropane	ND		8.5	1.4
120-82-1	1,2,4-Trichlorobenzene	ND		1.7	0.36
87-61-6	1,2,3-Trichlorobenzene	ND		2.6	0.51
87-68-3	Hexachlorobutadiene	ND		2.6	0.51
91-20-3	Naphthalene	ND		8.5	1.5
1634-04-4	Methyl tert-butyl ether	ND		1.7	0.26

CAS NO.	SURROGATE	%REC	Q	LIMITS
2037-26-5	Toluene-d8 (Surr)	100		80-120
460-00-4	4-Bromofluorobenzene (Surr)	102		80-120
1868-53-7	Dibromofluoromethane (Surr)	102		80-120
98-08-8	Trifluorotoluene (Surr)	99		80-120
17060-07-0	1,2-Dichloroethane-d4 (Surr)	114		80-121

*MW 8/14/19*

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87648-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070215

Lab Sample ID: 580-87648-6

Matrix: Solid

Lab File ID: 072519\_0045.D

Analysis Method: 8260C

Date Collected: 07/13/2019 14:40

Sample wt/vol: 7.126(g)

Date Analyzed: 07/26/2019 05:45

Soil Aliquot Vol: \_\_\_\_\_

Dilution Factor: 1

Soil Extract Vol.: \_\_\_\_\_

GC Column: DB-VRX ID: 0.25 (mm)

% Moisture: 25.7

Level: (low/med) Low

Analysis Batch No.: 306671

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-71-8	Dichlorodifluoromethane	ND		1.9	0.46
74-87-3	Chloromethane	ND		4.7	0.88
75-01-4	Vinyl chloride	ND		1.9	0.28
74-83-9	Bromomethane	ND		0.94	0.20
75-00-3	Chloroethane	ND		9.4	1.5
75-69-4	Trichlorofluoromethane	ND		1.9	0.28
75-35-4	1,1-Dichloroethene	ND		4.7	1.0
75-09-2	Methylene Chloride	ND		38	9.3
156-60-5	trans-1,2-Dichloroethene	ND		1.9	0.38
75-34-3	1,1-Dichloroethane	ND		0.94	0.18
594-20-7	2,2-Dichloropropane	ND		4.7	0.85
156-59-2	cis-1,2-Dichloroethene	ND		2.8	0.57
74-97-5	Bromochloromethane	ND		1.9	0.24
67-66-3	Chloroform	ND		1.9	0.28
71-55-6	1,1,1-Trichloroethane	ND		1.9	0.28
56-23-5	Carbon tetrachloride	ND		1.9	0.28
563-58-6	1,1-Dichloropropene	ND		1.9	0.28
71-43-2	Benzene	ND		1.9	0.37
107-06-2	1,2-Dichloroethane	ND		0.94	0.19
79-01-6	Trichloroethene	ND		1.9	0.28
78-87-5	1,2-Dichloropropane	ND		1.9	0.38
74-95-3	Dibromomethane	ND		0.94	0.16
75-27-4	Bromodichloromethane	ND		0.94	0.17
10061-01-5	cis-1,3-Dichloropropene	ND		0.94	0.19
108-88-3	Toluene	ND		9.4	1.2
10061-02-6	trans-1,3-Dichloropropene	ND		9.4	1.3
79-00-5	1,1,2-Trichloroethane	ND		1.9	0.24
127-18-4	Tetrachloroethene	ND		1.9	0.38
142-28-9	1,3-Dichloropropane	ND		1.9	0.22
124-48-1	Dibromochloromethane	ND		1.4	0.25
106-93-4	1,2-Dibromoethane	ND		0.94	0.19
108-90-7	Chlorobenzene	ND		1.9	0.24
100-41-4	Ethylbenzene	ND		1.9	0.39
630-20-6	1,1,1,2-Tetrachloroethane	ND		2.8	0.56
79-34-5	1,1,2,2-Tetrachloroethane	ND		3.8	0.85
179601-23-1	m-Xylene & p-Xylene	ND		9.4	1.6

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87648-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070215

Lab Sample ID: 580-87648-6

Matrix: Solid

Lab File ID: 072519\_0045.D

Analysis Method: 8260C

Date Collected: 07/13/2019 14:40

Sample wt/vol: 7.126(g)

Date Analyzed: 07/26/2019 05:45

Soil Aliquot Vol: \_\_\_\_\_

Dilution Factor: 1

Soil Extract Vol.: \_\_\_\_\_

GC Column: DB-VRX ID: 0.25 (mm)

% Moisture: 25.7

Level: (low/med) Low

Analysis Batch No.: 306671

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
95-47-6	o-Xylene	ND	✓	4.7	0.87
100-42-5	Styrene	ND		2.8	0.70
75-25-2	Bromoform	ND		4.7	0.79
98-82-8	Isopropylbenzene	ND		1.9	0.43
108-86-1	Bromobenzene	ND		9.4	0.94
103-65-1	N-Propylbenzene	ND		4.7	0.72
96-18-4	1,2,3-Trichloropropane	ND		4.7	0.94
95-49-8	2-Chlorotoluene	ND		4.7	0.88
108-67-8	1,3,5-Trimethylbenzene	ND		4.7	0.76
106-43-4	4-Chlorotoluene	ND		4.7	0.94
98-06-6	t-Butylbenzene	ND		2.8	0.62
95-63-6	1,2,4-Trimethylbenzene	ND		4.7	1.1
135-98-8	sec-Butylbenzene	ND		2.8	0.63
541-73-1	1,3-Dichlorobenzene	ND		4.7	1.0
99-87-6	4-Isopropyltoluene	ND		1.9	0.38
106-46-7	1,4-Dichlorobenzene	ND		4.7	0.92
104-51-8	n-Butylbenzene	ND		2.8	0.59
95-50-1	1,2-Dichlorobenzene	ND		9.4	1.2
96-12-8	1,2-Dibromo-3-Chloropropane	ND		9.4	1.5
120-82-1	1,2,4-Trichlorobenzene	ND		1.9	0.40
87-61-6	1,2,3-Trichlorobenzene	ND		2.8	0.57
87-68-3	Hexachlorobutadiene	ND		2.8	0.57
91-20-3	Naphthalene	ND		9.4	1.7
1634-04-4	Methyl tert-butyl ether	ND		1.9	0.28

CAS NO.	SURROGATE	%REC	Q	LIMITS
2037-26-5	Toluene-d8 (Surr)	99		80-120
460-00-4	4-Bromofluorobenzene (Surr)	102		80-120
1868-53-7	Dibromofluoromethane (Surr)	99		80-120
98-08-8	Trifluorotoluene (Surr)	100		80-120
17060-07-0	1,2-Dichloroethane-d4 (Surr)	116		80-121

*mw 8-14-19*

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87648-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070606

Lab Sample ID: 580-87648-7

Matrix: Solid

Lab File ID: 072519\_0037.D

Analysis Method: 8260C

Date Collected: 07/13/2019 17:50

Sample wt/vol: 5(g)

Date Analyzed: 07/26/2019 02:27

Soil Aliquot Vol: \_\_\_\_\_

Dilution Factor: 1

Soil Extract Vol.: \_\_\_\_\_

GC Column: DB-VRX ID: 0.25 (mm)

% Moisture: \_\_\_\_\_

Level: (low/med) Low

Analysis Batch No.: 306671

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-71-8	Dichlorodifluoromethane	ND		2.0	0.49
74-87-3	Chloromethane	ND		5.0	0.93
75-01-4	Vinyl chloride	ND		2.0	0.30
74-83-9	Bromomethane	ND		1.0	0.21
75-00-3	Chloroethane	ND		10	1.6
75-69-4	Trichlorofluoromethane	ND		2.0	0.30
75-35-4	1,1-Dichloroethene	ND		5.0	1.1
75-09-2	Methylene Chloride	ND		40	9.9
156-60-5	trans-1,2-Dichloroethene	ND		2.0	0.40
75-34-3	1,1-Dichloroethane	ND		1.0	0.19
594-20-7	2,2-Dichloropropane	ND		5.0	0.90
156-59-2	cis-1,2-Dichloroethene	ND		3.0	0.60
74-97-5	Bromochloromethane	ND		2.0	0.25
67-66-3	Chloroform	ND		2.0	0.30
71-55-6	1,1,1-Trichloroethane	ND		2.0	0.30
56-23-5	Carbon tetrachloride	ND		2.0	0.30
563-58-6	1,1-Dichloropropene	ND		2.0	0.30
71-43-2	Benzene	ND		2.0	0.39
107-06-2	1,2-Dichloroethane	ND		1.0	0.20
79-01-6	Trichloroethene	ND		2.0	0.30
78-87-5	1,2-Dichloropropane	ND		2.0	0.40
74-95-3	Dibromomethane	ND		1.0	0.17
75-27-4	Bromodichloromethane	ND		1.0	0.18
10061-01-5	cis-1,3-Dichloropropene	ND		1.0	0.20
108-88-3	Toluene	ND		10	1.3
10061-02-6	trans-1,3-Dichloropropene	ND		10	1.4
79-00-5	1,1,2-Trichloroethane	ND		2.0	0.25
127-18-4	Tetrachloroethene	ND		2.0	0.40
142-28-9	1,3-Dichloropropane	ND		2.0	0.23
124-48-1	Dibromochloromethane	ND		1.5	0.27
106-93-4	1,2-Dibromoethane	ND		1.0	0.20
108-90-7	Chlorobenzene	ND		2.0	0.25
100-41-4	Ethylbenzene	ND		2.0	0.41
630-20-6	1,1,1,2-Tetrachloroethane	ND		3.0	0.59
79-34-5	1,1,2,2-Tetrachloroethane	ND		4.0	0.90
179601-23-1	m-Xylene & p-Xylene	ND		10	1.7



FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87648-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070606

Lab Sample ID: 580-87648-7

Matrix: Solid

Lab File ID: 072519\_0037.D

Analysis Method: 8260C

Date Collected: 07/13/2019 17:50

Sample wt/vol: 5(g)

Date Analyzed: 07/26/2019 02:27

Soil Aliquot Vol: \_\_\_\_\_

Dilution Factor: 1

Soil Extract Vol.: \_\_\_\_\_

GC Column: DB-VRX ID: 0.25 (mm)

% Moisture: \_\_\_\_\_

Level: (low/med) Low

Analysis Batch No.: 306671

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
95-47-6	o-Xylene	ND	1/10	5.0	0.92
100-42-5	Styrene	ND		3.0	0.74
75-25-2	Bromoform	ND		5.0	0.84
98-82-8	Isopropylbenzene	ND		2.0	0.46
108-86-1	Bromobenzene	ND		10	1.0
103-65-1	N-Propylbenzene	ND		5.0	0.76
96-18-4	1,2,3-Trichloropropane	ND		5.0	1.0
95-49-8	2-Chlorotoluene	ND		5.0	0.93
108-67-8	1,3,5-Trimethylbenzene	ND		5.0	0.81
106-43-4	4-Chlorotoluene	ND		5.0	1.0
98-06-6	t-Butylbenzene	ND		3.0	0.66
95-63-6	1,2,4-Trimethylbenzene	ND		5.0	1.2
135-98-8	sec-Butylbenzene	ND		3.0	0.67
541-73-1	1,3-Dichlorobenzene	ND		5.0	1.1
99-87-6	4-Isopropyltoluene	ND		2.0	0.40
106-46-7	1,4-Dichlorobenzene	ND		5.0	0.98
104-51-8	n-Butylbenzene	ND		3.0	0.63
95-50-1	1,2-Dichlorobenzene	ND		10	1.3
96-12-8	1,2-Dibromo-3-Chloropropane	ND		10	1.6
120-82-1	1,2,4-Trichlorobenzene	ND		2.0	0.42
87-61-6	1,2,3-Trichlorobenzene	ND		3.0	0.60
87-68-3	Hexachlorobutadiene	ND		3.0	0.60
91-20-3	Naphthalene	ND		10	1.8
1634-04-4	Methyl tert-butyl ether	ND		2.0	0.30

CAS NO.	SURROGATE	%REC	Q	LIMITS
2037-26-5	Toluene-d8 (Surr)	99		80-120
460-00-4	4-Bromofluorobenzene (Surr)	105		80-120
1868-53-7	Dibromofluoromethane (Surr)	107		80-120
98-08-8	Trifluorotoluene (Surr)	99		80-120
17060-07-0	1,2-Dichloroethane-d4 (Surr)	122		80-121

*MW 8/14/19*



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### MEMORANDUM

DATE: August 25, 2019

TO: Seth Wing, START-IV Project Manager, E & E, Seattle, WA

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington 

SUBJ: **Organic Data Quality Assurance Review, May Creek Removal Action Site, Renton, Washington**

REF: TO: TO-68HE0718F0470 PAN: 1004530.0470.001.01

The data quality assurance review of 6 soil samples collected from the May Creek Removal Action site in Renton, Washington, has been completed. Semivolatile Organic Compound (SVOC) analysis (EPA Method 8270) was performed by Test America, Inc., Tacoma, Washington. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Manual Process (S2B/4VM).

The samples were numbered: 19070210 19070211 19070212 19070213  
19070214 19070215

#### Data Qualifications:

##### 1. Sample Holding Times: Acceptable.

The samples were maintained and received within the QC limits of 0°C to 6°C. The samples were collected on July 12 and 13, 2019, were extracted on July 23, 2019, and were analyzed by July 24, 2019, therefore meeting holding time criteria of less than 14 days between collection and extraction and less than 40 days between extraction and analysis.

##### 2. Tuning: Acceptable.

Tuning was performed at the beginning of each 12-hour analysis sequence. All results were within QC limits.

##### 3. Initial Calibration: Satisfactory.

All average Relative Response Factors (RRFs) were within the QC limits except n-nitroso-di-n-propylamine; associated sample quantitation limits were rejected (R). All Relative Standard Deviations (RSDs) were within the QC limits.

##### 4. Continuing Calibration: Satisfactory.

All RRFs were within the QC limits except n-nitroso-di-n-propylamine; no additional actions were taken. All % differences were within the QC limits except low 4-nitroaniline, 4-nitrophenol, and benzidine recoveries; associated positive results and sample quantitation limits were qualified as estimated quantities with a low bias (JL or UJL).

##### 5. Blanks: Acceptable.

A method blank was analyzed for each 20 sample batch per matrix. There were no detections in any method blank.

**6. System Monitoring Compounds (SMCs): Satisfactory.**

All SMC recoveries were within QC limits except one low recovery (4% below QC limits) outlier in the method blank (no actions were taken as all other SMCs in the blank were within QC limits) and a high recovery outlier each in the MS/MSD (evidence of matrix interference was present; therefore, no qualifiers were applied.)

**7. Matrix Spike (MS)/MS Duplicate (MSD) Analysis: Satisfactory.**

MS and MSD analyses were performed per SDG or per matrix per concentration level, whichever was more frequent. All recoveries were within QC limits except 2,4-Dinitrophenol, 4,6-Dinitro-2-methylphenol, and hexachlorocyclopentadiene failed the recovery criteria low for the MS and butyl benzyl phthalate, di-n-butyl phthalate, di-n-octyl phthalate, and fluoranthene failed the recovery criteria high. For the MSD, 2,4-Dinitrophenol, Hexachlorocyclopentadiene, and Hexachloroethane failed the recovery criteria low and 2,6-Dinitrotoluene, 4,6-Dinitro-2-methylphenol, butyl benzyl phthalate and di-n-octyl phthalate failed the recovery criteria high. According to the laboratory, sample matrix interference and/or non-homogeneity are suspected because the associated BS recoveries were within QC limits. No qualifiers were applied based on these outliers alone.

**8. Blank Spike (BS)/BS Duplicate (BSD) Analysis: Acceptable.**

BS analyses were performed per SDG or per matrix per concentration level, whichever was more frequent. All recoveries were within QC limits.

**9. Duplicate Analysis: Satisfactory.**

Spike duplicate analyses were performed per SDG or per matrix per concentration level, whichever was more frequent. All spike duplicate results were within QC limits except several outliers in the MS and MSD. No qualifiers were applied based on the duplicate outliers alone.

**10. Internal Standards: Acceptable.**

All internal standards (IS) were within  $\pm 30$  seconds of the continuing calibration IS retention times. All area counts were within 50 % to 200 % of the continuing calibration area counts.

**11. Overall Assessment of Data for Use**

A total of 402 results were validated in this data memorandum. No sample results were qualified as estimated quantities (J) based on duplicate precision outliers, spike accuracy outliers, holding time outliers, incorrect sample containers, or sample temperature outliers. No sample results were rejected (R).

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the analytical method(s), the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, and/or the Office of Emergency and Remedial Response Publication "National Functional Guidelines for Superfund Organic Methods Data Review, January 2017". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

### Data Qualifiers and Definitions

- H - The sample result is biased high.
- J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
- K - The bias of the sample is not known.
- L - The sample result is biased low.
- N - The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification".
- NJ - The analyte has been "tentatively identified" or "presumptively" as present and the associated numerical value is the estimated concentration in the sample.
- Q - Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.
- R - The data is rejected and unusable. The analyte may or may not be present in the sample.
- U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.

FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87648-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070210

Lab Sample ID: 580-87648-1

Matrix: Solid

Lab File ID: 0724B007.D

Analysis Method: 8270D

Date Collected: 07/12/2019 10:15

Extract. Method: 3550B

Date Extracted: 07/23/2019 09:40

Sample wt/vol: 10.676(g)

Date Analyzed: 07/24/2019 16:05

Con. Extract Vol.: 10(mL)

Dilution Factor: 1

Injection Volume: 1(uL)

Level: (low/med) Low

% Moisture: 23.4

GPC Cleanup: (Y/N) N

Analysis Batch No.: 306480

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
108-95-2	Phenol	ND		180	28
111-44-4	Bis(2-chloroethyl)ether	ND		120	9.4
95-57-8	2-Chlorophenol	ND		240	16
541-73-1	1,3-Dichlorobenzene	ND		61	5.9
106-46-7	1,4-Dichlorobenzene	ND		61	10
100-51-6	Benzyl alcohol	ND		610	94
95-50-1	1,2-Dichlorobenzene	ND		61	15
95-48-7	2-Methylphenol	ND		180	12
15831-10-4	3 & 4 Methylphenol	ND		240	18
621-64-7	N-Nitrosodi-n-propylamine	ND		240	27
67-72-1	Hexachloroethane	ND		180	11
98-95-3	Nitrobenzene	ND		240	24
78-59-1	Isophorone	ND		180	9.0
88-75-5	2-Nitrophenol	ND		240	26
105-67-9	2,4-Dimethylphenol	ND		120	18
65-85-0	Benzoic acid	ND		2400	710
111-91-1	Bis(2-chloroethoxy)methane	ND		240	22
120-83-2	2,4-Dichlorophenol	ND		120	18
120-82-1	1,2,4-Trichlorobenzene	ND		61	7.3
91-20-3	Naphthalene	ND		31	6.1
106-47-8	4-Chloroaniline	ND		1800	490
87-68-3	Hexachlorobutadiene	ND		61	18
59-50-7	4-Chloro-3-methylphenol	ND		180	40
91-57-6	2-Methylnaphthalene	ND		61	11
77-47-4	Hexachlorocyclopentadiene	ND		120	24
88-06-2	2,4,6-Trichlorophenol	ND		180	44
95-95-4	2,4,5-Trichlorophenol	ND		240	55
91-58-7	2-Chloronaphthalene	ND		31	6.1
88-74-4	2-Nitroaniline	ND		120	18
131-11-3	Dimethyl phthalate	ND		180	16
208-96-8	Acenaphthylene	ND		31	6.1
606-20-2	2,6-Dinitrotoluene	ND		180	42
99-09-2	3-Nitroaniline	ND		240	49
83-32-9	Acenaphthene	ND		31	6.1

*mw*  
*mw 8/14/19*

FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87648-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070210

Lab Sample ID: 580-87648-1

Matrix: Solid

Lab File ID: 0724B007.D

Analysis Method: 8270D

Date Collected: 07/12/2019 10:15

Extract. Method: 3550B

Date Extracted: 07/23/2019 09:40

Sample wt/vol: 10.676(g)

Date Analyzed: 07/24/2019 16:05

Con. Extract Vol.: 10(mL)

Dilution Factor: 1

Injection Volume: 1(uL)

Level: (low/med) Low

% Moisture: 23.4

GPC Cleanup: (Y/N) N

Analysis Batch No.: 306480

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
51-28-5	2,4-Dinitrophenol	ND		1200	240
100-02-7	4-Nitrophenol	ND		1800	450
132-64-9	Dibenzofuran	ND		180	7.2
121-14-2	2,4-Dinitrotoluene	ND		240	53
84-66-2	Diethyl phthalate	ND		1800	93
7005-72-3	4-Chlorophenyl phenyl ether	ND		240	7.7
86-73-7	Fluorene	ND		31	6.1
100-01-6	4-Nitroaniline	ND		180	61
534-52-1	4,6-Dinitro-2-methylphenol	ND		1200	120
86-30-6	N-Nitrosodiphenylamine	ND		73	9.8
101-55-3	4-Bromophenyl phenyl ether	ND		240	11
118-74-1	Hexachlorobenzene	ND		61	18
87-86-5	Pentachlorophenol	ND		550	160
85-01-8	Phenanthrene	ND		73	15
120-12-7	Anthracene	ND		31	6.1
84-74-2	Di-n-butyl phthalate	ND		610	70
206-44-0	Fluoranthene	ND		31	6.1
129-00-0	Pyrene	ND		73	7.8
85-68-7	Butyl benzyl phthalate	93	J Q	240	62
91-94-1	3,3'-Dichlorobenzidine	ND		490	120
56-55-3	Benzo[a]anthracene	ND		31	6.1
218-01-9	Chrysene	ND		73	16
117-81-7	Bis(2-ethylhexyl) phthalate	ND		730	87
117-84-0	Di-n-octyl phthalate	ND		180	70
50-32-8	Benzo[a]pyrene	ND		73	16
193-39-5	Indeno[1,2,3-cd]pyrene	ND		49	6.1
53-70-3	Dibenz(a,h)anthracene	ND		61	15
191-24-2	Benzo[g,h,i]perylene	ND		73	11
86-74-8	Carbazole	ND		180	10
90-12-0	1-Methylnaphthalene	ND		37	6.1
205-99-2	Benzo[b]fluoranthene	ND		31	6.1
207-08-9	Benzo[k]fluoranthene	ND		73	17
108-60-1	bis(chloroisopropyl) ether	ND		240	17

*mm 8/4/19*

FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87648-1  
SDG No.: \_\_\_\_\_  
Client Sample ID: 19070210 Lab Sample ID: 580-87648-1  
Matrix: Solid Lab File ID: 0724B007.D  
Analysis Method: 8270D Date Collected: 07/12/2019 10:15  
Extract. Method: 3550B Date Extracted: 07/23/2019 09:40  
Sample wt/vol: 10.676(g) Date Analyzed: 07/24/2019 16:05  
Con. Extract Vol.: 10 (mL) Dilution Factor: 1  
Injection Volume: 1 (uL) Level: (low/med) Low  
% Moisture: 23.4 GPC Cleanup: (Y/N) N  
Analysis Batch No.: 306480 Units: ug/Kg

CAS NO.	SURROGATE	%REC	Q	LIMITS
367-12-4	2-Fluorophenol (Surr)	81		60-125
4165-62-2	Phenol-d5 (Surr)	79		59-120
4165-60-0	Nitrobenzene-d5 (Surr)	84		62-120
321-60-8	2-Fluorobiphenyl	81		57-120
118-79-6	2,4,6-Tribromophenol (Surr)	73		52-125
1718-51-0	Terphenyl-d14 (Surr)	113		58-120

*mu 8/4/19*

FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87648-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070211

Lab Sample ID: 580-87648-2

Matrix: Solid

Lab File ID: 0724B008.D

Analysis Method: 8270D

Date Collected: 07/12/2019 10:35

Extract. Method: 3550B

Date Extracted: 07/23/2019 09:40

Sample wt/vol: 11.474(g)

Date Analyzed: 07/24/2019 16:28

Con. Extract Vol.: 10(mL)

Dilution Factor: 1

Injection Volume: 1(uL)

Level: (low/med) Low

% Moisture: 35.7

GPC Cleanup: (Y/N) N

Analysis Batch No.: 306480

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
108-95-2	Phenol	ND		200	31
111-44-4	Bis(2-chloroethyl)ether	ND		140	10
95-57-8	2-Chlorophenol	ND		270	18
541-73-1	1,3-Dichlorobenzene	ND		68	6.5
106-46-7	1,4-Dichlorobenzene	ND		68	11
100-51-6	Benzyl alcohol	ND		680	100
95-50-1	1,2-Dichlorobenzene	ND		68	16
95-48-7	2-Methylphenol	ND		200	13
15831-10-4	3 & 4 Methylphenol	ND		270	20
621-64-7	N-Nitrosodi-n-propylamine	ND		270	30
67-72-1	Hexachloroethane	ND		200	12
98-95-3	Nitrobenzene	ND		270	27
78-59-1	Isophorone	ND		200	10
88-75-5	2-Nitrophenol	ND		270	28
105-67-9	2,4-Dimethylphenol	ND		140	20
65-85-0	Benzoic acid	ND		2700	790
111-91-1	Bis(2-chloroethoxy)methane	ND		270	24
120-83-2	2,4-Dichlorophenol	ND		140	20
120-82-1	1,2,4-Trichlorobenzene	ND		68	8.1
91-20-3	Naphthalene	ND		34	6.8
106-47-8	4-Chloroaniline	ND		2000	540
87-68-3	Hexachlorobutadiene	ND		68	20
59-50-7	4-Chloro-3-methylphenol	ND		200	45
91-57-6	2-Methylnaphthalene	ND		68	12
77-47-4	Hexachlorocyclopentadiene	ND		140	27
88-06-2	2,4,6-Trichlorophenol	ND		200	49
95-95-4	2,4,5-Trichlorophenol	ND		270	61
91-58-7	2-Chloronaphthalene	ND		34	6.8
88-74-4	2-Nitroaniline	ND		140	20
131-11-3	Dimethyl phthalate	ND		200	18
208-96-8	Acenaphthylene	ND		34	6.8
606-20-2	2,6-Dinitrotoluene	ND		200	46
99-09-2	3-Nitroaniline	ND		270	54
83-32-9	Acenaphthene	ND		34	6.8



FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87648-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070211

Lab Sample ID: 580-87648-2

Matrix: Solid

Lab File ID: 0724B008.D

Analysis Method: 8270D

Date Collected: 07/12/2019 10:35

Extract. Method: 3550B

Date Extracted: 07/23/2019 09:40

Sample wt/vol: 11.474(g)

Date Analyzed: 07/24/2019 16:28

Con. Extract Vol.: 10(mL)

Dilution Factor: 1

Injection Volume: 1(uL)

Level: (low/med) Low

% Moisture: 35.7

GPC Cleanup: (Y/N) N

Analysis Batch No.: 306480

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
51-28-5	2,4-Dinitrophenol	ND		1400	270
100-02-7	4-Nitrophenol	ND		2000	500
132-64-9	Dibenzofuran	ND		200	8.0
121-14-2	2,4-Dinitrotoluene	ND		270	58
84-66-2	Diethyl phthalate	ND		2000	100
7005-72-3	4-Chlorophenyl phenyl ether	ND		270	8.5
86-73-7	Fluorene	ND		34	6.8
100-01-6	4-Nitroaniline	ND		200	68
534-52-1	4,6-Dinitro-2-methylphenol	ND		1400	140
86-30-6	N-Nitrosodiphenylamine	ND		81	11
101-55-3	4-Bromophenyl phenyl ether	ND		270	12
118-74-1	Hexachlorobenzene	ND		68	20
87-86-5	Pentachlorophenol	ND		610	180
85-01-8	Phenanthrene	ND		81	16
120-12-7	Anthracene	ND		34	6.8
84-74-2	Di-n-butyl phthalate	ND		680	77
206-44-0	Fluoranthene	8.6 J	Q	34	6.8
129-00-0	Pyrene	ND		81	8.7
85-68-7	Butyl benzyl phthalate	82 J	Q	270	69
91-94-1	3,3'-Dichlorobenzidine	ND		540	140
56-55-3	Benzo[a]anthracene	ND		34	6.8
218-01-9	Chrysene	ND		81	18
117-81-7	Bis(2-ethylhexyl) phthalate	ND		810	96
117-84-0	Di-n-octyl phthalate	ND		200	77
50-32-8	Benzo[a]pyrene	ND		81	18
193-39-5	Indeno[1,2,3-cd]pyrene	ND		54	6.8
53-70-3	Dibenz(a,h)anthracene	ND		68	16
191-24-2	Benzo[g,h,i]perylene	ND		81	12
86-74-8	Carbazole	ND		200	11
90-12-0	1-Methylnaphthalene	ND		41	6.8
205-99-2	Benzo[b]fluoranthene	ND		34	6.8
207-08-9	Benzo[k]fluoranthene	ND		81	19
108-60-1	bis(chloroisopropyl) ether	ND		270	19

*Mu 8/14/19*

FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87648-1  
SDG No.: \_\_\_\_\_  
Client Sample ID: 19070211 Lab Sample ID: 580-87648-2  
Matrix: Solid Lab File ID: 0724B008.D  
Analysis Method: 8270D Date Collected: 07/12/2019 10:35  
Extract. Method: 3550B Date Extracted: 07/23/2019 09:40  
Sample wt/vol: 11.474 (g) Date Analyzed: 07/24/2019 16:28  
Con. Extract Vol.: 10 (mL) Dilution Factor: 1  
Injection Volume: 1 (uL) Level: (low/med) Low  
% Moisture: 35.7 GPC Cleanup: (Y/N) N  
Analysis Batch No.: 306480 Units: ug/Kg

CAS NO.	SURROGATE	%REC	Q	LIMITS
367-12-4	2-Fluorophenol (Surr)	100		60-125
4165-62-2	Phenol-d5 (Surr)	96		59-120
4165-60-0	Nitrobenzene-d5 (Surr)	81		62-120
321-60-8	2-Fluorobiphenyl	78		57-120
118-79-6	2,4,6-Tribromophenol (Surr)	92		52-125
1718-51-0	Terphenyl-d14 (Surr)	120		58-120

*MW 8/14/19*

FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87648-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070212

Lab Sample ID: 580-87648-3

Matrix: Solid

Lab File ID: 0724B009.D

Analysis Method: 8270D

Date Collected: 07/12/2019 16:00

Extract. Method: 3550B

Date Extracted: 07/23/2019 09:40

Sample wt/vol: 12.114(g)

Date Analyzed: 07/24/2019 16:52

Con. Extract Vol.: 10(mL)

Dilution Factor: 1

Injection Volume: 1(uL)

Level: (low/med) Low

% Moisture: 12.2

GPC Cleanup: (Y/N) N

Analysis Batch No.: 306480

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
108-95-2	Phenol	ND		140	22
111-44-4	Bis(2-chloroethyl)ether	ND		94	7.2
95-57-8	2-Chlorophenol	ND		190	12
541-73-1	1,3-Dichlorobenzene	ND		47	4.5
106-46-7	1,4-Dichlorobenzene	ND		47	7.8
100-51-6	Benzyl alcohol	ND		470	72
95-50-1	1,2-Dichlorobenzene	ND		47	11
95-48-7	2-Methylphenol	ND		140	9.2
15831-10-4	3 & 4 Methylphenol	ND		190	14
621-64-7	N-Nitrosodi-n-propylamine	ND		190	21
67-72-1	Hexachloroethane	ND		140	8.3
98-95-3	Nitrobenzene	ND		190	19
78-59-1	Isophorone	ND		140	7.0
88-75-5	2-Nitrophenol	ND		190	20
105-67-9	2,4-Dimethylphenol	ND		94	14
65-85-0	Benzoic acid	ND		1900	540
111-91-1	Bis(2-chloroethoxy)methane	ND		190	17
120-83-2	2,4-Dichlorophenol	ND		94	14
120-82-1	1,2,4-Trichlorobenzene	ND		47	5.6
91-20-3	Naphthalene	ND		24	4.7
106-47-8	4-Chloroaniline	ND		1400	380
87-68-3	Hexachlorobutadiene	ND		47	14
59-50-7	4-Chloro-3-methylphenol	ND		140	31
91-57-6	2-Methylnaphthalene	ND		47	8.3
77-47-4	Hexachlorocyclopentadiene	ND		94	19
88-06-2	2,4,6-Trichlorophenol	ND		140	34
95-95-4	2,4,5-Trichlorophenol	ND		190	42
91-58-7	2-Chloronaphthalene	ND		24	4.7
88-74-4	2-Nitroaniline	ND		94	14
131-11-3	Dimethyl phthalate	ND		140	12
208-96-8	Acenaphthylene	ND		24	4.7
606-20-2	2,6-Dinitrotoluene	ND		140	32
99-09-2	3-Nitroaniline	ND		190	38
83-32-9	Acenaphthene	ND		24	4.7

FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87648-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070212

Lab Sample ID: 580-87648-3

Matrix: Solid

Lab File ID: 0724B009.D

Analysis Method: 8270D

Date Collected: 07/12/2019 16:00

Extract. Method: 3550B

Date Extracted: 07/23/2019 09:40

Sample wt/vol: 12.114(g)

Date Analyzed: 07/24/2019 16:52

Con. Extract Vol.: 10(mL)

Dilution Factor: 1

Injection Volume: 1(uL)

Level: (low/med) Low

% Moisture: 12.2

GPC Cleanup: (Y/N) N

Analysis Batch No.: 306480

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
51-28-5	2,4-Dinitrophenol	ND		940	190
100-02-7	4-Nitrophenol	ND		1400	350
132-64-9	Dibenzofuran	ND		140	5.5
121-14-2	2,4-Dinitrotoluene	ND		190	40
84-66-2	Diethyl phthalate	ND		1400	71
7005-72-3	4-Chlorophenyl phenyl ether	ND		190	5.9
86-73-7	Fluorene	ND		24	4.7
100-01-6	4-Nitroaniline	ND		140	47
534-52-1	4,6-Dinitro-2-methylphenol	ND		940	94
86-30-6	N-Nitrosodiphenylamine	ND		56	7.5
101-55-3	4-Bromophenyl phenyl ether	ND		190	8.6
118-74-1	Hexachlorobenzene	ND		47	14
87-86-5	Pentachlorophenol	ND		420	120
85-01-8	Phenanthrene	ND		56	11
120-12-7	Anthracene	ND		24	4.7
84-74-2	Di-n-butyl phthalate	ND		470	54
206-44-0	Fluoranthene	ND		24	4.7
129-00-0	Pyrene	ND		56	6.0
85-68-7	Butyl benzyl phthalate	81	JQ	190	48
91-94-1	3,3'-Dichlorobenzidine	ND		380	94
56-55-3	Benzo[a]anthracene	ND		24	4.7
218-01-9	Chrysene	ND		56	12
117-81-7	Bis(2-ethylhexyl) phthalate	88	JQ	560	67
117-84-0	Di-n-octyl phthalate	ND		140	54
50-32-8	Benzo[a]pyrene	ND		56	12
193-39-5	Indeno[1,2,3-cd]pyrene	ND		38	4.7
53-70-3	Dibenz(a,h)anthracene	ND		47	11
191-24-2	Benzo[g,h,i]perylene	ND		56	8.5
86-74-8	Carbazole	ND		140	7.7
90-12-0	1-Methylnaphthalene	ND		28	4.7
205-99-2	Benzo[b]fluoranthene	ND		24	4.7
207-08-9	Benzo[k]fluoranthene	ND		56	13
108-60-1	bis(chloroisopropyl) ether	ND		190	13

FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87648-1  
SDG No.: \_\_\_\_\_  
Client Sample ID: 19070212 Lab Sample ID: 580-87648-3  
Matrix: Solid Lab File ID: 0724B009.D  
Analysis Method: 8270D Date Collected: 07/12/2019 16:00  
Extract. Method: 3550B Date Extracted: 07/23/2019 09:40  
Sample wt/vol: 12.114(g) Date Analyzed: 07/24/2019 16:52  
Con. Extract Vol.: 10(mL) Dilution Factor: 1  
Injection Volume: 1(uL) Level: (low/med) Low  
% Moisture: 12.2 GPC Cleanup: (Y/N) N  
Analysis Batch No.: 306480 Units: ug/Kg

CAS NO.	SURROGATE	%REC	Q	LIMITS
367-12-4	2-Fluorophenol (Surr)	86		60-125
4165-62-2	Phenol-d5 (Surr)	84		59-120
4165-60-0	Nitrobenzene-d5 (Surr)	75		62-120
321-60-8	2-Fluorobiphenyl	71		57-120
118-79-6	2,4,6-Tribromophenol (Surr)	77		52-125
1718-51-0	Terphenyl-d14 (Surr)	99		58-120

*MW 8-14-19*

FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87648-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070213

Lab Sample ID: 580-87648-4

Matrix: Solid

Lab File ID: 0724B010.D

Analysis Method: 8270D

Date Collected: 07/12/2019 16:30

Extract. Method: 3550B

Date Extracted: 07/23/2019 09:40

Sample wt/vol: 12.570(g)

Date Analyzed: 07/24/2019 17:16

Con. Extract Vol.: 10(mL)

Dilution Factor: 1

Injection Volume: 1(uL)

Level: (low/med) Low

% Moisture: 14.7

GPC Cleanup: (Y/N) N

Analysis Batch No.: 306480

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
108-95-2	Phenol	ND		140	21
111-44-4	Bis(2-chloroethyl)ether	ND		93	7.2
95-57-8	2-Chlorophenol	ND		190	12
541-73-1	1,3-Dichlorobenzene	ND		47	4.5
106-46-7	1,4-Dichlorobenzene	ND		47	7.7
100-51-6	Benzyl alcohol	ND		470	72
95-50-1	1,2-Dichlorobenzene	ND		47	11
95-48-7	2-Methylphenol	ND		140	9.1
15831-10-4	3 & 4 Methylphenol	ND		190	14
621-64-7	N-Nitrosodi-n-propylamine	ND		190	21
67-72-1	Hexachloroethane	ND		140	8.2
98-95-3	Nitrobenzene	ND		190	19
78-59-1	Isophorone	ND		140	6.9
88-75-5	2-Nitrophenol	ND		190	20
105-67-9	2,4-Dimethylphenol	ND		93	14
65-85-0	Benzoic acid	ND		1900	540
111-91-1	Bis(2-chloroethoxy)methane	ND		190	17
120-83-2	2,4-Dichlorophenol	ND		93	14
120-82-1	1,2,4-Trichlorobenzene	ND		47	5.6
91-20-3	Naphthalene	ND		23	4.7
106-47-8	4-Chloroaniline	ND		1400	370
87-68-3	Hexachlorobutadiene	ND		47	14
59-50-7	4-Chloro-3-methylphenol	ND		140	31
91-57-6	2-Methylnaphthalene	ND		47	8.2
77-47-4	Hexachlorocyclopentadiene	ND		93	19
88-06-2	2,4,6-Trichlorophenol	ND		140	34
95-95-4	2,4,5-Trichlorophenol	ND		190	42
91-58-7	2-Chloronaphthalene	ND		23	4.7
88-74-4	2-Nitroaniline	ND		93	14
131-11-3	Dimethyl phthalate	ND		140	12
208-96-8	Acenaphthylene	ND		23	4.7
606-20-2	2,6-Dinitrotoluene	ND		140	32
99-09-2	3-Nitroaniline	ND		190	37
83-32-9	Acenaphthene	ND		23	4.7

*mu*  
*mu 8/4/19*

FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87648-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070213

Lab Sample ID: 580-87648-4

Matrix: Solid

Lab File ID: 0724B010.D

Analysis Method: 8270D

Date Collected: 07/12/2019 16:30

Extract. Method: 3550B

Date Extracted: 07/23/2019 09:40

Sample wt/vol: 12.570(g)

Date Analyzed: 07/24/2019 17:16

Con. Extract Vol.: 10(mL)

Dilution Factor: 1

Injection Volume: 1(uL)

Level: (low/med) Low

% Moisture: 14.7

GPC Cleanup: (Y/N) N

Analysis Batch No.: 306480

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
51-28-5	2,4-Dinitrophenol	ND		930	190
100-02-7	4-Nitrophenol	ND		1400	340
132-64-9	Dibenzofuran	ND		140	5.5
121-14-2	2,4-Dinitrotoluene	ND		190	40
84-66-2	Diethyl phthalate	ND		1400	71
7005-72-3	4-Chlorophenyl phenyl ether	ND		190	5.9
86-73-7	Fluorene	ND		23	4.7
100-01-6	4-Nitroaniline	ND		140	47
534-52-1	4,6-Dinitro-2-methylphenol	ND		930	93
86-30-6	N-Nitrosodiphenylamine	ND		56	7.5
101-55-3	4-Bromophenyl phenyl ether	ND		190	8.5
118-74-1	Hexachlorobenzene	ND		47	14
87-86-5	Pentachlorophenol	ND		420	120
85-01-8	Phenanthrene	ND		56	11
120-12-7	Anthracene	ND		23	4.7
84-74-2	Di-n-butyl phthalate	ND		470	53
206-44-0	Fluoranthene	ND		23	4.7
129-00-0	Pyrene	ND		56	6.0
85-68-7	Butyl benzyl phthalate	60	JG	190	48
91-94-1	3,3'-Dichlorobenzidine	ND		370	93
56-55-3	Benzo[a]anthracene	ND		23	4.7
218-01-9	Chrysene	ND		56	12
117-81-7	Bis(2-ethylhexyl) phthalate	ND		560	66
117-84-0	Di-n-octyl phthalate	ND		140	53
50-32-8	Benzo[a]pyrene	ND		56	12
193-39-5	Indeno[1,2,3-cd]pyrene	ND		37	4.7
53-70-3	Dibenz(a,h)anthracene	ND		47	11
191-24-2	Benzo[g,h,i]perylene	ND		56	8.4
86-74-8	Carbazole	ND		140	7.6
90-12-0	1-Methylnaphthalene	ND		28	4.7
205-99-2	Benzo[b]fluoranthene	ND		23	4.7
207-08-9	Benzo[k]fluoranthene	ND		56	13
108-60-1	bis(chloroisopropyl) ether	ND		190	13

*MW 8/14/19*

FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87648-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070213 Lab Sample ID: 580-87648-4  
 Matrix: Solid Lab File ID: 0724B010.D  
 Analysis Method: 8270D Date Collected: 07/12/2019 16:30  
 Extract. Method: 3550B Date Extracted: 07/23/2019 09:40  
 Sample wt/vol: 12.570(g) Date Analyzed: 07/24/2019 17:16  
 Con. Extract Vol.: 10(mL) Dilution Factor: 1  
 Injection Volume: 1(uL) Level: (low/med) Low  
 % Moisture: 14.7 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 306480 Units: ug/Kg

CAS NO.	SURROGATE	%REC	Q	LIMITS
367-12-4	2-Fluorophenol (Surr)	82		60-125
4165-62-2	Phenol-d5 (Surr)	72		59-120
4165-60-0	Nitrobenzene-d5 (Surr)	81		62-120
321-60-8	2-Fluorobiphenyl	79		57-120
118-79-6	2,4,6-Tribromophenol (Surr)	65		52-125
1718-51-0	Terphenyl-d14 (Surr)	113		58-120

*MW 8-14-19*



FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87648-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070214

Lab Sample ID: 580-87648-5

Matrix: Solid

Lab File ID: 0724B011.D

Analysis Method: 8270D

Date Collected: 07/13/2019 14:30

Extract. Method: 3550B

Date Extracted: 07/23/2019 09:40

Sample wt/vol: 12.520(g)

Date Analyzed: 07/24/2019 17:40

Con. Extract Vol.: 10(mL)

Dilution Factor: 1

Injection Volume: 1(uL)

Level: (low/med) Low

% Moisture: 11.6

GPC Cleanup: (Y/N) N

Analysis Batch No.: 306480

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
108-95-2	Phenol	ND		140	21
111-44-4	Bis(2-chloroethyl)ether	ND		90	7.0
95-57-8	2-Chlorophenol	ND		180	12
541-73-1	1,3-Dichlorobenzene	ND		45	4.3
106-46-7	1,4-Dichlorobenzene	ND		45	7.5
100-51-6	Benzyl alcohol	ND		450	70
95-50-1	1,2-Dichlorobenzene	ND		45	11
95-48-7	2-Methylphenol	ND		140	8.9
15831-10-4	3 & 4 Methylphenol	ND		180	14
621-64-7	N-Nitrosodi-n-propylamine	ND		180	20
67-72-1	Hexachloroethane	ND		140	7.9
98-95-3	Nitrobenzene	ND		180	18
78-59-1	Isophorone	ND		140	6.7
88-75-5	2-Nitrophenol	ND		180	19
105-67-9	2,4-Dimethylphenol	ND		90	14
65-85-0	Benzoic acid	ND		1800	520
111-91-1	Bis(2-chloroethoxy)methane	ND		180	16
120-83-2	2,4-Dichlorophenol	ND		90	14
120-82-1	1,2,4-Trichlorobenzene	ND		45	5.4
91-20-3	Naphthalene	ND		23	4.5
106-47-8	4-Chloroaniline	ND		1400	360
87-68-3	Hexachlorobutadiene	ND		45	14
59-50-7	4-Chloro-3-methylphenol	ND		140	30
91-57-6	2-Methylnaphthalene	ND		45	7.9
77-47-4	Hexachlorocyclopentadiene	ND		90	18
88-06-2	2,4,6-Trichlorophenol	ND		140	33
95-95-4	2,4,5-Trichlorophenol	ND		180	41
91-58-7	2-Chloronaphthalene	ND		23	4.5
88-74-4	2-Nitroaniline	ND		90	14
131-11-3	Dimethyl phthalate	ND		140	12
208-96-8	Acenaphthylene	ND		23	4.5
606-20-2	2,6-Dinitrotoluene	ND		140	31
99-09-2	3-Nitroaniline	ND		180	36
83-32-9	Acenaphthene	ND		23	4.5

FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87648-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070214

Lab Sample ID: 580-87648-5

Matrix: Solid

Lab File ID: 0724B011.D

Analysis Method: 8270D

Date Collected: 07/13/2019 14:30

Extract. Method: 3550B

Date Extracted: 07/23/2019 09:40

Sample wt/vol: 12.520(g)

Date Analyzed: 07/24/2019 17:40

Con. Extract Vol.: 10(mL)

Dilution Factor: 1

Injection Volume: 1(uL)

Level: (low/med) Low

% Moisture: 11.6

GPC Cleanup: (Y/N) N

Analysis Batch No.: 306480

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
51-28-5	2,4-Dinitrophenol	ND		900	180
100-02-7	4-Nitrophenol	ND		1400	330
132-64-9	Dibenzofuran	ND		140	5.3
121-14-2	2,4-Dinitrotoluene	ND		180	39
84-66-2	Diethyl phthalate	ND		1400	69
7005-72-3	4-Chlorophenyl phenyl ether	ND		180	5.7
86-73-7	Fluorene	ND		23	4.5
100-01-6	4-Nitroaniline	ND		140	45
534-52-1	4,6-Dinitro-2-methylphenol	ND		900	90
86-30-6	N-Nitrosodiphenylamine	ND		54	7.2
101-55-3	4-Bromophenyl phenyl ether	ND		180	8.2
118-74-1	Hexachlorobenzene	ND		45	14
87-86-5	Pentachlorophenol	ND		410	120
85-01-8	Phenanthrene	ND		54	11
120-12-7	Anthracene	ND		23	4.5
84-74-2	Di-n-butyl phthalate	ND		450	51
206-44-0	Fluoranthene	12	J	23	4.5
129-00-0	Pyrene	11	J	54	5.8
85-68-7	Butyl benzyl phthalate	47	J	180	46
91-94-1	3,3'-Dichlorobenzidine	ND		360	90
56-55-3	Benzo[a]anthracene	ND		23	4.5
218-01-9	Chrysene	ND		54	12
117-81-7	Bis(2-ethylhexyl) phthalate	ND		540	64
117-84-0	Di-n-octyl phthalate	ND		140	51
50-32-8	Benzo[a]pyrene	ND		54	12
193-39-5	Indeno[1,2,3-cd]pyrene	ND		36	4.5
53-70-3	Dibenz(a,h)anthracene	ND		45	11
191-24-2	Benzo[g,h,i]perylene	ND		54	8.1
86-74-8	Carbazole	ND		140	7.4
90-12-0	1-Methylnaphthalene	ND		27	4.5
205-99-2	Benzo[b]fluoranthene	ND		23	4.5
207-08-9	Benzo[k]fluoranthene	ND		54	13
108-60-1	bis(chloroisopropyl) ether	ND		180	13

FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87648-1  
SDG No.: \_\_\_\_\_  
Client Sample ID: 19070214 Lab Sample ID: 580-87648-5  
Matrix: Solid Lab File ID: 0724B011.D  
Analysis Method: 8270D Date Collected: 07/13/2019 14:30  
Extract. Method: 3550B Date Extracted: 07/23/2019 09:40  
Sample wt/vol: 12.520(g) Date Analyzed: 07/24/2019 17:40  
Con. Extract Vol.: 10(mL) Dilution Factor: 1  
Injection Volume: 1(uL) Level: (low/med) Low  
% Moisture: 11.6 GPC Cleanup: (Y/N) N  
Analysis Batch No.: 306480 Units: ug/Kg

CAS NO.	SURROGATE	%REC	Q	LIMITS
367-12-4	2-Fluorophenol (Surr)	90		60-125
4165-62-2	Phenol-d5 (Surr)	84		59-120
4165-60-0	Nitrobenzene-d5 (Surr)	94		62-120
321-60-8	2-Fluorobiphenyl	84		57-120
118-79-6	2,4,6-Tribromophenol (Surr)	84		52-125
1718-51-0	Terphenyl-d14 (Surr)	111		58-120

*mw 8/4/19*

FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87648-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070215

Lab Sample ID: 580-87648-6

Matrix: Solid

Lab File ID: 0724B012.D

Analysis Method: 8270D

Date Collected: 07/13/2019 14:40

Extract. Method: 3550B

Date Extracted: 07/23/2019 09:40

Sample wt/vol: 11.196(g)

Date Analyzed: 07/24/2019 18:03

Con. Extract Vol.: 10(mL)

Dilution Factor: 1

Injection Volume: 1(uL)

Level: (low/med) Low

% Moisture: 25.7

GPC Cleanup: (Y/N) N

Analysis Batch No.: 306480

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
108-95-2	Phenol	ND		180	28
111-44-4	Bis(2-chloroethyl) ether	ND		120	9.3
95-57-8	2-Chlorophenol	ND		240	16
541-73-1	1,3-Dichlorobenzene	ND		60	5.8
106-46-7	1,4-Dichlorobenzene	ND		60	10
100-51-6	Benzyl alcohol	ND		600	93
95-50-1	1,2-Dichlorobenzene	ND		60	14
95-48-7	2-Methylphenol	ND		180	12
15831-10-4	3 & 4 Methylphenol	ND		240	18
621-64-7	N-Nitrosodi-n-propylamine	ND		240	26 <i>R</i>
67-72-1	Hexachloroethane	ND		180	11
98-95-3	Nitrobenzene	ND		240	24
78-59-1	Isophorone	ND		180	8.9
88-75-5	2-Nitrophenol	ND		240	25
105-67-9	2,4-Dimethylphenol	ND		120	18
65-85-0	Benzoic acid	ND		2400	700
111-91-1	Bis(2-chloroethoxy)methane	ND		240	22
120-83-2	2,4-Dichlorophenol	ND		120	18
120-82-1	1,2,4-Trichlorobenzene	ND		60	7.2
91-20-3	Naphthalene	ND		30	6.0
106-47-8	4-Chloroaniline	ND		1800	480
87-68-3	Hexachlorobutadiene	ND		60	18
59-50-7	4-Chloro-3-methylphenol	ND		180	40
91-57-6	2-Methylnaphthalene	ND		60	11
77-47-4	Hexachlorocyclopentadiene	ND		120	24
88-06-2	2,4,6-Trichlorophenol	ND		180	43
95-95-4	2,4,5-Trichlorophenol	ND		240	54
91-58-7	2-Chloronaphthalene	ND		30	6.0
88-74-4	2-Nitroaniline	ND		120	18
131-11-3	Dimethyl phthalate	ND		180	16
208-96-8	Acenaphthylene	ND		30	6.0
606-20-2	2,6-Dinitrotoluene	ND		180	41
99-09-2	3-Nitroaniline	ND		240	48
83-32-9	Acenaphthene	ND		30	6.0

FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87648-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070215

Lab Sample ID: 580-87648-6

Matrix: Solid

Lab File ID: 0724B012.D

Analysis Method: 8270D

Date Collected: 07/13/2019 14:40

Extract. Method: 3550B

Date Extracted: 07/23/2019 09:40

Sample wt/vol: 11.196(g)

Date Analyzed: 07/24/2019 18:03

Con. Extract Vol.: 10(mL)

Dilution Factor: 1

Injection Volume: 1(uL)

Level: (low/med) Low

% Moisture: 25.7

GPC Cleanup: (Y/N) N

Analysis Batch No.: 306480

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
51-28-5	2,4-Dinitrophenol	ND		1200	240
100-02-7	4-Nitrophenol	ND		1800	440
132-64-9	Dibenzofuran	ND		180	7.1
121-14-2	2,4-Dinitrotoluene	ND		240	52
84-66-2	Diethyl phthalate	ND		1800	91
7005-72-3	4-Chlorophenyl phenyl ether	ND		240	7.6
86-73-7	Fluorene	ND		30	6.0
100-01-6	4-Nitroaniline	ND		180	60
534-52-1	4,6-Dinitro-2-methylphenol	ND		1200	120
86-30-6	N-Nitrosodiphenylamine	ND		72	9.6
101-55-3	4-Bromophenyl phenyl ether	ND		240	11
118-74-1	Hexachlorobenzene	ND		60	18
87-86-5	Pentachlorophenol	ND		540	160
85-01-8	Phenanthrene	ND		72	14
120-12-7	Anthracene	ND		30	6.0
84-74-2	Di-n-butyl phthalate	ND		600	68
206-44-0	Fluoranthene	ND		30	6.0
129-00-0	Pyrene	ND		72	7.7
85-68-7	Butyl benzyl phthalate	ND		240	61
91-94-1	3,3'-Dichlorobenzidine	ND		480	120
56-55-3	Benzo[a]anthracene	ND		30	6.0
218-01-9	Chrysene	ND		72	16
117-81-7	Bis(2-ethylhexyl) phthalate	ND		720	85
117-84-0	Di-n-octyl phthalate	ND		180	68
50-32-8	Benzo[a]pyrene	ND		72	16
193-39-5	Indeno[1,2,3-cd]pyrene	ND		48	6.0
53-70-3	Dibenz(a,h)anthracene	ND		60	14
191-24-2	Benzo[g,h,i]perylene	ND		72	11
86-74-8	Carbazole	ND		180	9.9
90-12-0	1-Methylnaphthalene	ND		36	6.0
205-99-2	Benzo[b]fluoranthene	ND		30	6.0
207-08-9	Benzo[k]fluoranthene	ND		72	17
108-60-1	bis(chloroisopropyl) ether	ND		240	17

FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87648-1  
SDG No.: \_\_\_\_\_  
Client Sample ID: 19070215 Lab Sample ID: 580-87648-6  
Matrix: Solid Lab File ID: 0724B012.D  
Analysis Method: 8270D Date Collected: 07/13/2019 14:40  
Extract. Method: 3550B Date Extracted: 07/23/2019 09:40  
Sample wt/vol: 11.196(g) Date Analyzed: 07/24/2019 18:03  
Con. Extract Vol.: 10 (mL) Dilution Factor: 1  
Injection Volume: 1 (uL) Level: (low/med) Low  
% Moisture: 25.7 GPC Cleanup: (Y/N) N  
Analysis Batch No.: 306480 Units: ug/Kg

CAS NO.	SURROGATE	%REC	Q	LIMITS
367-12-4	2-Fluorophenol (Surr)	95		60-125
4165-62-2	Phenol-d5 (Surr)	88		59-120
4165-60-0	Nitrobenzene-d5 (Surr)	89		62-120
321-60-8	2-Fluorobiphenyl	84		57-120
118-79-6	2,4,6-Tribromophenol (Surr)	89		52-125
1718-51-0	Terphenyl-d14 (Surr)	115		58-120

*MW 8/14/19*



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### MEMORANDUM

DATE: August 25, 2019

TO: Seth Wing, START-IV Project Manager, E & E, Seattle, Washington

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington *MW*

SUBJ: **Organic Data Quality Assurance Review, May Creek Removal Action Site, Renton, Washington**

REF: TO: TO-68HE0718F0470 PAN: 1004530.0470.001.01

The data quality assurance review of 7 soil samples collected from the May Creek Removal Action site located in Renton, Washington, has been completed. Analysis for Extended Gasoline Range Total Petroleum Hydrocarbons (Ecology Method NWTPH-Gx) analyses was performed by Test America, Inc., Tacoma, Washington. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Manual Process (S2B/4VM).

The samples were numbered:	19070210	19070211	19070212	19070213
	19070214	19070215	19070606	

#### Data Qualifications:

##### 1. **Sample Holding Times: Satisfactory.**

The samples were maintained and received within the QC limits of  $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ . The samples were collected on July 12 and 13, 2019, were received at the laboratory within 48 hours of collection, and were analyzed by August 1, 2019, therefore meeting QC criteria of less than 14 days between collection and analysis for soil samples except sample 19070606; associated sample results were qualified as estimated quantities with a low bias (JL or UJL).

##### 2. **Initial Calibration: Acceptable.**

Calculations were verified as correct. All relative percent differences (RPDs) were less than or equal to the laboratory control limits.

##### 3. **Continuing Calibration: Acceptable.**

Calculations were verified as correct. All percent differences were less than or equal to the laboratory control limits.

##### 5. **Blanks: Satisfactory.**

A method blank was analyzed at the required frequency of every 12 hours for each matrix, preparation technique, and analysis system. Gasoline-range TPHs was detected at 2.42 mg/kg in the July 31, 2019 method blank; associated positive results were qualified as not detected (U).

**6. System Monitoring Compounds (SMC): Acceptable.**

All recoveries of the SMCs were within QC limits.

**7. Blank Spikes (BS) and BS Duplicate (BSD) Analyses: Acceptable.**

BS and BSD results were within laboratory QC limits.

**8. Duplicates: Acceptable.**

All spike duplicate results were within laboratory QC limits.

**9. Quantitation and Quantitation Limits: Acceptable.**

Sample quantitation and sample quantitation limits were correctly calculated.

**10. Laboratory Contact: Not Required.**

No laboratory contact was required.

**11. Overall Assessment of Data for Use**

The following samples were provided to the laboratory with a higher initial weight than that required by the reference method: 19070210, 19070211, 19070212, 19070213, 19070214, and 19070215. Associated sample results were qualified as estimated quantities with an unknown bias (JK or UJK).

A total of seven results were validated in this data memorandum. No sample results were qualified as estimated quantities (J) based on duplicate precision outliers, spike accuracy outliers, holding time outliers, incorrect sample containers, or sample temperature outliers. No sample results were rejected (R).

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the analytical method(s), the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, and/or the Office of Emergency and Remedial Response Publication "National Functional Guidelines for Superfund Organic Methods Data Review, January 2017". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

H - The sample result is biased high.

J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

K - The bias of the sample is not known.



- L - The sample result is biased low.
- Q - Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.
- R - The data is rejected and unusable. The analyte may or may not be present in the sample.
- U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.

FORM I  
GC VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87648-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070210 Lab Sample ID: 580-87648-1  
 Matrix: Solid Lab File ID: 07191913.D  
 Analysis Method: NWTPH-Gx Date Collected: 07/12/2019 10:15  
 Sample wt/vol: 17.781(g) Date Analyzed: 07/19/2019 15:32  
 Soil Aliquot Vol: 1.075 (mL) Dilution Factor: 1  
 Soil Extract Vol.: 10 (mL) GC Column: RTX-VRX ID: 0.45 (mm)  
 % Moisture: 23.4 Level: (low/med) Medium  
 Analysis Batch No.: 306151 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00228	Gasoline	<i>mw</i>		5.2	<i>Wk</i> 2.4

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	98		50-150

*mw 8/14/19*

FORM I  
GC VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87648-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070211 Lab Sample ID: 580-87648-2  
 Matrix: Solid Lab File ID: 07191914.D  
 Analysis Method: NWTPH-Gx Date Collected: 07/12/2019 10:35  
 Sample wt/vol: 14.185(g) Date Analyzed: 07/19/2019 16:02  
 Soil Aliquot Vol: 1.075 (mL) Dilution Factor: 1  
 Soil Extract Vol.: 10 (mL) GC Column: RTX-VRX ID: 0.45 (mm)  
 % Moisture: 35.7 Level: (low/med) Medium  
 Analysis Batch No.: 306151 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00228	Gasoline	<i>MD</i>		8.3	<i>DTK</i> 3.8

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	98		50-150

*mm 8/14/19*

FORM I  
GC VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87648-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070212 Lab Sample ID: 580-87648-3  
 Matrix: Solid Lab File ID: 07191915.D  
 Analysis Method: NWTPH-Gx Date Collected: 07/12/2019 16:00  
 Sample wt/vol: 14.551(g) Date Analyzed: 07/19/2019 16:33  
 Soil Aliquot Vol: 1.075 (mL) Dilution Factor: 1  
 Soil Extract Vol.: 10 (mL) GC Column: RTX-VRX ID: 0.45 (mm)  
 % Moisture: 12.2 Level: (low/med) Medium  
 Analysis Batch No.: 306151 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00228	Gasoline	<del>ND</del> <i>mu</i>		4.6	<i>UJK</i> 2.1

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	98		50-150

*mu 8/14/19*

FORM I  
GC VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87648-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070213 Lab Sample ID: 580-87648-4  
 Matrix: Solid Lab File ID: 07191916.D  
 Analysis Method: NWTPH-Gx Date Collected: 07/12/2019 16:30  
 Sample wt/vol: 12.355(g) Date Analyzed: 07/19/2019 17:03  
 Soil Aliquot Vol: 1.075 (mL) Dilution Factor: 1  
 Soil Extract Vol.: 10 (mL) GC Column: RTX-VRX ID: 0.45 (mm)  
 % Moisture: 14.7 Level: (low/med) Medium  
 Analysis Batch No.: 306151 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00228	Gasoline	ND		5.6	2.6

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	96		50-150

*MW 8/4/19*

FORM I  
GC VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87648-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070214 Lab Sample ID: 580-87648-5  
 Matrix: Solid Lab File ID: 07191917.D  
 Analysis Method: NWTPH-Gx Date Collected: 07/13/2019 14:30  
 Sample wt/vol: 13.237(g) Date Analyzed: 07/19/2019 17:33  
 Soil Aliquot Vol: 1.075 (mL) Dilution Factor: 1  
 Soil Extract Vol.: 10 (mL) GC Column: RTX-VRX ID: 0.45 (mm)  
 % Moisture: 11.6 Level: (low/med) Medium  
 Analysis Batch No.: 306151 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00228	Gasoline	<del>ND</del> M		4.9	2.3

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	98		50-150

*mw 8/14/19*

FORM I  
GC VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87648-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070215 Lab Sample ID: 580-87648-6  
 Matrix: Solid Lab File ID: 07191918.D  
 Analysis Method: NWTPH-Gx Date Collected: 07/13/2019 14:40  
 Sample wt/vol: 13.555(g) Date Analyzed: 07/19/2019 18:03  
 Soil Aliquot Vol: 1.075 (mL) Dilution Factor: 1  
 Soil Extract Vol.: 10 (mL) GC Column: RTX-VRX ID: 0.45 (mm)  
 % Moisture: 25.7 Level: (low/med) Medium  
 Analysis Batch No.: 306151 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00228	Gasoline	<del>ND</del> <i>m</i>		6.7	<del>3.1</del> <i>002</i>

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	96		50-150

*MW 8/14/19*

FORM I  
GC VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87648-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070606 Lab Sample ID: 580-87648-7  
 Matrix: Solid Lab File ID: 07311935.D  
 Analysis Method: NWTPH-Gx Date Collected: 07/13/2019 17:50  
 Sample wt/vol: 10(g) Date Analyzed: 08/01/2019 02:14  
 Soil Aliquot Vol: 1.075 (mL) Dilution Factor: 1  
 Soil Extract Vol.: 10(mL) GC Column: RTX-VRX ID: 0.45 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Medium  
 Analysis Batch No.: 307211 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00228	Gasoline	ND	H	5.0	2.3

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	100		50-150

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### MEMORANDUM

DATE: August 25, 2019

TO: Seth Wing, START-IV Project Manager, E & E, Seattle, WA

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington 

SUBJ: **Organic Data Quality Assurance Review, May Creek Removal Action Site, Renton, Washington**

REF: TO: TO-68HE0718F0470 PAN: 1004530.0470.001.01

The data quality assurance review of 6 soil samples collected from the May Creek Removal Action site located in Renton, Washington, has been completed. Analyses for Chlorinated Pesticides (EPA Method 8081) and Polychlorinated Biphenyls (PCBs - EPA Method 8082) were performed by Test America, Inc., Tacoma, Washington. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Manual Process (S2B/4VM).

The samples were numbered: 19070210 19070211 19070212 19070213  
19070214 19070215

#### Data Qualifications:

##### 1. Sample Holding Times: Acceptable.

The samples were maintained at 0°C to 6°C. The samples were collected on July 12 and 13, 2019, extracted on July 24, 2019, and were analyzed by August 7, 2019, therefore meeting QC criteria of less than 14 days between collection and soil sample extraction and less than 40 days between extraction and analysis. There are no holding time limits for Method 8082 PCBs.

##### 2. Instrument Performance: Acceptable.

The surrogate retention time percent difference between the initial calibration standards and the remaining standards and samples was  $\leq 0.3\%$  for capillary column analyses.

##### 3. Initial and Continuing Calibration: Satisfactory.

All initial calibration relative standard deviations (RSDs) were within QC limits. All continuing calibration % differences (% D) were within QC limits except some high pesticide and PCB results (no actions were taken based on these outliers as the associated analytes were not detected in the samples), some low pesticide results on one column (no actions were taken as the results from the other column were within QC limits), and one high SMC result (no actions were taken based on this outlier as all PCB SMC sample results were within QC limits).

##### 4. Blanks: Satisfactory.

A method blank was prepared at the required frequency of every time samples were extracted for

each matrix and for each concentration level, or every 20 samples, whichever is greater, and for each analytical system. No target analytes were detected in the laboratory blanks except Endosulfan I in a continuing calibration blank; no actions were taken based on this outlier as this analyte was not detected in any samples.

**5. System Monitoring Compounds (SMCs): Satisfactory.**

All recoveries of the SMCs were within QC limits except high PCB outliers in sample 190702133 (no actions were taken as there is evidence of matrix interference) and the method blank (no actions were taken as no PCBs were detected in the method blank).

**7. Blank Spike (BS) Analyses: Acceptable.**

BS and BS duplicate recoveries were within QC limits.

**8. Duplicates: Acceptable.**

Relative Percent Differences (RPDs) of all spiked analytes were within the required control limits.

**9. Compound Identification: Satisfactory.**

All positive sample results were dual-column confirmed with differences between the columns less than 40% except 4,4'-DDE in sample 19070211 and cis-chlordane, 4,4'-DDE, and 4,4'-DDD in sample 19070214; associated positive results were qualified as estimated quantities with an unknown bias (JK).

**10. Target Compound Quantitation and Quantitation Limits: Acceptable.**

Sample results and quantitation limits were correctly calculated.

**11. Laboratory Contact**

No laboratory contact was required.

**12. Overall Assessment**

A total of 168 results were validated in this data memorandum. No sample results were qualified as estimated quantities (J) based on duplicate precision outliers, holding time outliers, spike accuracy outliers, incorrect sample containers, or sample temperature outliers. No sample results were rejected (R).

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the analytical method(s), the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, and/or the Office of Emergency and Remedial Response Publication "National Functional Guidelines for Superfund Organic Methods Data Review, January 2017". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

H - The sample result is biased high.

J - The result is an estimated quantity. The associated numerical value is the approximate

concentration of the analyte in the sample.

- K - The bias of the sample is not known.
- L - The sample result is biased low.
- Q - Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.
- R - The data is rejected and unusable. The analyte may or may not be present in the sample.
- U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.

FORM I  
PESTICIDES ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87648-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070210

Lab Sample ID: 580-87648-1

Matrix: Solid

Lab File ID: 45G080619a018.D

Analysis Method: 8081B

Date Collected: 07/12/2019 10:15

Extraction Method: 3546

Date Extracted: 07/24/2019 10:07

Sample wt/vol: 10.353(g)

Date Analyzed: 08/06/2019 11:54

Con. Extract Vol.: 10(mL)

Dilution Factor: 1

Injection Volume: 1(uL)

GC Column: ZB-CLPest-1 ID: 0.25 (mm)

% Moisture: 23.4

GPC Cleanup: (Y/N) N

Analysis Batch No.: 307557

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
309-00-2	Aldrin	ND		3.8	0.48
319-84-6	alpha-BHC	ND		2.5	0.20
319-85-7	beta-BHC	ND		6.3	0.32
319-86-8	delta-BHC	ND		3.8	0.35
58-89-9	gamma-BHC (Lindane)	ND		2.5	0.95
72-54-8	4,4'-DDD	ND		2.5	0.29
72-55-9	4,4'-DDE	ND		2.5	0.47
50-29-3	4,4'-DDT	ND		2.5	0.47
60-57-1	Dieldrin	ND		2.5	0.44
959-98-8	Endosulfan I	ND		2.5	0.43
33213-65-9	Endosulfan II	ND		2.5	0.33
1031-07-8	Endosulfan sulfate	ND		2.5	0.35
72-20-8	Endrin	ND		2.5	0.59
7421-93-4	Endrin aldehyde	ND		25	6.1
76-44-8	Heptachlor	ND		3.8	0.24
1024-57-3	Heptachlor epoxide	ND		3.8	0.38
72-43-5	Methoxychlor	ND		13	0.47
53494-70-5	Endrin ketone	ND		2.5	0.53
8001-35-2	Toxaphene	ND		130	32
5103-71-9	cis-Chlordane	ND		2.5	0.95
5103-74-2	trans-Chlordane	ND		3.8	0.40

CAS NO.	SURROGATE	%REC	Q	LIMITS
877-09-8	Tetrachloro-m-xylene	93		50-123
2051-24-3	DCB Decachlorobiphenyl	116		36-136

*MW 8-14-19*

FORM I  
PESTICIDES ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87648-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070211 Lab Sample ID: 580-87648-2  
 Matrix: Solid Lab File ID: 45G080619a019.D  
 Analysis Method: 8081B Date Collected: 07/12/2019 10:35  
 Extraction Method: 3546 Date Extracted: 07/24/2019 10:07  
 Sample wt/vol: 10.605(g) Date Analyzed: 08/06/2019 12:12  
 Con. Extract Vol.: 10(mL) Dilution Factor: 1  
 Injection Volume: 1(uL) GC Column: ZB-CLPest-1 ID: 0.25(mm)  
 % Moisture: 35.7 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 307557 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
1031-07-8	Endosulfan sulfate	ND		2.9	0.41
7421-93-4	Endrin aldehyde	ND		29	7.0
72-43-5	Methoxychlor	ND		15	0.54
53494-70-5	Endrin ketone	ND		2.9	0.62

CAS NO.	SURROGATE	%REC	Q	LIMITS
877-09-8	Tetrachloro-m-xylene	55		50-123
2051-24-3	DCB Decachlorobiphenyl	75		36-136

*M7B-14-19*

FORM I  
PESTICIDES ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87648-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070211

Lab Sample ID: 580-87648-2

Matrix: Solid

Lab File ID: 45G080719a011.D

Analysis Method: 8081B

Date Collected: 07/12/2019 10:35

Extraction Method: 3546

Date Extracted: 07/24/2019 10:07

Sample wt/vol: 10.605(g)

Date Analyzed: 08/07/2019 10:18

Con. Extract Vol.: 10(mL)

Dilution Factor: 1

Injection Volume: 1(uL)

GC Column: ZB-CLPest-1 ID: 0.25(mm)

% Moisture: 35.7

GPC Cleanup: (Y/N) N

Analysis Batch No.: 307709

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
309-00-2	Aldrin	ND		4.4	0.56
319-84-6	alpha-BHC	ND		2.9	0.23
319-85-7	beta-BHC	ND		7.3	0.37
319-86-8	delta-BHC	ND		4.4	0.41
58-89-9	gamma-BHC (Lindane)	ND		2.9	1.1
72-54-8	4,4'-DDD	ND		2.9	0.34
72-55-9	4,4'-DDE	0.75	JQ	2.9	0.54
50-29-3	4,4'-DDT	ND		2.9	0.54
60-57-1	Dieldrin	ND		2.9	0.51
959-98-8	Endosulfan I	ND		2.9	0.50
33213-65-9	Endosulfan II	ND		2.9	0.38
72-20-8	Endrin	ND		2.9	0.69
76-44-8	Heptachlor	ND		4.4	0.28
1024-57-3	Heptachlor epoxide	ND		4.4	0.44
8001-35-2	Toxaphene	ND		150	37
5103-71-9	cis-Chlordane	ND		2.9	1.1
5103-74-2	trans-Chlordane	ND		4.4	0.47

CAS NO.	SURROGATE	%REC	Q	LIMITS
877-09-8	Tetrachloro-m-xylene	75		50-123
2051-24-3	DCB Decachlorobiphenyl	92		36-136

*mw 8/14/19*

FORM I  
PESTICIDES ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87648-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070212

Lab Sample ID: 580-87648-3

Matrix: Solid

Lab File ID: 45G080619a020.D

Analysis Method: 8081B

Date Collected: 07/12/2019 16:00

Extraction Method: 3546

Date Extracted: 07/24/2019 10:07

Sample wt/vol: 10.035(g)

Date Analyzed: 08/06/2019 12:31

Con. Extract Vol.: 10(mL)

Dilution Factor: 1

Injection Volume: 1(uL)

GC Column: ZB-CLPest-1 ID: 0.25(mm)

% Moisture: 12.2

GPC Cleanup: (Y/N) N

Analysis Batch No.: 307557

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
309-00-2	Aldrin	ND		3.4	0.43
319-84-6	alpha-BHC	ND		2.3	0.18
319-85-7	beta-BHC	ND		5.7	0.28
319-86-8	delta-BHC	ND		3.4	0.32
58-89-9	gamma-BHC (Lindane)	ND		2.3	0.85
72-54-8	4,4'-DDD	ND		2.3	0.26
72-55-9	4,4'-DDE	ND		2.3	0.42
50-29-3	4,4'-DDT	ND		2.3	0.42
60-57-1	Dieldrin	ND		2.3	0.40
959-98-8	Endosulfan I	ND		2.3	0.39
33213-65-9	Endosulfan II	ND		2.3	0.30
1031-07-8	Endosulfan sulfate	ND		2.3	0.32
72-20-8	Endrin	ND		2.3	0.53
7421-93-4	Endrin aldehyde	ND		23	5.4
76-44-8	Heptachlor	ND		3.4	0.22
1024-57-3	Heptachlor epoxide	ND		3.4	0.34
72-43-5	Methoxychlor	ND		11	0.42
53494-70-5	Endrin ketone	ND		2.3	0.48
8001-35-2	Toxaphene	ND		110	28
5103-71-9	cis-Chlordane	ND		2.3	0.85
5103-74-2	trans-Chlordane	ND		3.4	0.36

CAS NO.	SURROGATE	%REC	Q	LIMITS
877-09-8	Tetrachloro-m-xylene	64		50-123
2051-24-3	DCB Decachlorobiphenyl	82		36-136

*mw 8-14-19*

FORM I  
PESTICIDES ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87648-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070213

Lab Sample ID: 580-87648-4

Matrix: Solid

Lab File ID: 45G080619a021.D

Analysis Method: 8081B

Date Collected: 07/12/2019 16:30

Extraction Method: 3546

Date Extracted: 07/24/2019 10:07

Sample wt/vol: 10.340(g)

Date Analyzed: 08/06/2019 12:50

Con. Extract Vol.: 10(mL)

Dilution Factor: 1

Injection Volume: 1(uL)

GC Column: ZB-CLPest-1 ID: 0.25(mm)

% Moisture: 14.7

GPC Cleanup: (Y/N) N

Analysis Batch No.: 307557

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
309-00-2	Aldrin	ND		3.4	0.43
319-84-6	alpha-BHC	ND		2.3	0.18
319-85-7	beta-BHC	ND		5.7	0.28
319-86-8	delta-BHC	ND		3.4	0.32
58-89-9	gamma-BHC (Lindane)	ND		2.3	0.85
72-54-8	4,4'-DDD	ND		2.3	0.26
72-55-9	4,4'-DDE	ND		2.3	0.42
50-29-3	4,4'-DDT	ND		2.3	0.42
60-57-1	Dieldrin	ND		2.3	0.40
959-98-8	Endosulfan I	ND		2.3	0.39
33213-65-9	Endosulfan II	ND		2.3	0.29
1031-07-8	Endosulfan sulfate	ND		2.3	0.32
72-20-8	Endrin	ND		2.3	0.53
7421-93-4	Endrin aldehyde	ND		23	5.4
76-44-8	Heptachlor	ND		3.4	0.22
1024-57-3	Heptachlor epoxide	ND		3.4	0.34
72-43-5	Methoxychlor	ND		11	0.42
53494-70-5	Endrin ketone	ND		2.3	0.48
8001-35-2	Toxaphene	ND		110	28
5103-71-9	cis-Chlordane	ND		2.3	0.85
5103-74-2	trans-Chlordane	ND		3.4	0.36

CAS NO.	SURROGATE	%REC	Q	LIMITS
877-09-8	Tetrachloro-m-xylene	69		50-123
2051-24-3	DCB Decachlorobiphenyl	91		36-136

*Mw 8/4/19*



FORM I  
PESTICIDES ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87648-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070214 Lab Sample ID: 580-87648-5  
 Matrix: Solid Lab File ID: 45G080619a022.D  
 Analysis Method: 8081B Date Collected: 07/13/2019 14:30  
 Extraction Method: 3546 Date Extracted: 07/24/2019 10:07  
 Sample wt/vol: 10.390(g) Date Analyzed: 08/06/2019 13:08  
 Con. Extract Vol.: 10 (mL) Dilution Factor: 1  
 Injection Volume: 1 (uL) GC Column: ZB-CLPest-1 ID: 0.25 (mm)  
 % Moisture: 11.6 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 307557 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
1031-07-8	Endosulfan sulfate	ND		2.2	0.30
7421-93-4	Endrin aldehyde	ND		22	5.2
72-43-5	Methoxychlor	ND		11	0.40
53494-70-5	Endrin ketone	ND		2.2	0.46

CAS NO.	SURROGATE	%REC	Q	LIMITS
877-09-8	Tetrachloro-m-xylene	74		50-123
2051-24-3	DCB Decachlorobiphenyl	91		36-136

*MW 8-14-19*

FORM I  
PESTICIDES ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87648-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070214 Lab Sample ID: 580-87648-5  
 Matrix: Solid Lab File ID: 45G080719a012.D  
 Analysis Method: 8081B Date Collected: 07/13/2019 14:30  
 Extraction Method: 3546 Date Extracted: 07/24/2019 10:07  
 Sample wt/vol: 10.390(g) Date Analyzed: 08/07/2019 10:36  
 Con. Extract Vol.: 10(mL) Dilution Factor: 1  
 Injection Volume: 1(uL) GC Column: ZB-CLPest-1 ID: 0.25(mm)  
 % Moisture: 11.6 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 307709 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
309-00-2	Aldrin	ND		3.3	0.41
319-84-6	alpha-BHC	ND		2.2	0.17
319-85-7	beta-BHC	ND		5.4	0.27
319-86-8	delta-BHC	ND		3.3	0.30
58-89-9	gamma-BHC (Lindane)	ND		2.2	0.82
72-54-8	4,4'-DDD	0.69	JQ	2.2	0.25
72-55-9	4,4'-DDE	0.50	JQ	2.2	0.40
50-29-3	4,4'-DDT	ND		2.2	0.40
60-57-1	Dieldrin	ND		2.2	0.38
959-98-8	Endosulfan I	ND		2.2	0.37
33213-65-9	Endosulfan II	ND		2.2	0.28
72-20-8	Endrin	ND		2.2	0.51
76-44-8	Heptachlor	ND		3.3	0.21
1024-57-3	Heptachlor epoxide	ND		3.3	0.33
8001-35-2	Toxaphene	ND		110	27
5103-71-9	cis-Chlordane	2.9	JK	2.2	0.82
5103-74-2	trans-Chlordane	1.4	JQ	3.3	0.35

CAS NO.	SURROGATE	%REC	Q	LIMITS
877-09-8	Tetrachloro-m-xylene	76		50-123
2051-24-3	DCB Decachlorobiphenyl	83		36-136

*mu 8/14/19*

FORM I  
PESTICIDES ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87648-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070215 Lab Sample ID: 580-87648-6  
 Matrix: Solid Lab File ID: 45G080619a023.D  
 Analysis Method: 8081B Date Collected: 07/13/2019 14:40  
 Extraction Method: 3546 Date Extracted: 07/24/2019 10:07  
 Sample wt/vol: 10.867(g) Date Analyzed: 08/06/2019 13:27  
 Con. Extract Vol.: 10(mL) Dilution Factor: 1  
 Injection Volume: 1(uL) GC Column: ZB-CLPest-1 ID: 0.25 (mm)  
 % Moisture: 25.7 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 307557 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
1031-07-8	Endosulfan sulfate	ND		2.5	0.35
7421-93-4	Endrin aldehyde	ND		25	5.9
72-43-5	Methoxychlor	ND		12	0.46
53494-70-5	Endrin ketone	ND		2.5	0.52

CAS NO.	SURROGATE	%REC	Q	LIMITS
877-09-8	Tetrachloro-m-xylene	62		50-123
2051-24-3	DCB Decachlorobiphenyl	80		36-136

*mw 8/4/19*

FORM I  
PESTICIDES ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87648-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070215 Lab Sample ID: 580-87648-6  
 Matrix: Solid Lab File ID: 45G080719a013.D  
 Analysis Method: 8081B Date Collected: 07/13/2019 14:40  
 Extraction Method: 3546 Date Extracted: 07/24/2019 10:07  
 Sample wt/vol: 10.867(g) Date Analyzed: 08/07/2019 10:55  
 Con. Extract Vol.: 10(mL) Dilution Factor: 1  
 Injection Volume: 1(uL) GC Column: ZB-CLPest-1 ID: 0.25 (mm)  
 % Moisture: 25.7 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 307709 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
309-00-2	Aldrin	ND		3.7	0.47
319-84-6	alpha-BHC	ND		2.5	0.20
319-85-7	beta-BHC	ND		6.2	0.31
319-86-8	delta-BHC	ND		3.7	0.35
58-89-9	gamma-BHC (Lindane)	ND		2.5	0.93
72-54-8	4,4'-DDD	ND		2.5	0.28
72-55-9	4,4'-DDE	ND		2.5	0.46
50-29-3	4,4'-DDT	ND		2.5	0.46
60-57-1	Dieldrin	ND		2.5	0.43
959-98-8	Endosulfan I	ND		2.5	0.42
33213-65-9	Endosulfan II	ND		2.5	0.32
72-20-8	Endrin	ND		2.5	0.58
76-44-8	Heptachlor	ND		3.7	0.24
1024-57-3	Heptachlor epoxide	ND		3.7	0.37
8001-35-2	Toxaphene	ND		120	31

CAS NO.	SURROGATE	%REC	Q	LIMITS
877-09-8	Tetrachloro-m-xylene	69		50-123
2051-24-3	DCB Decachlorobiphenyl	77		36-136

*Mw 8/4/19*

FORM I  
PESTICIDES ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87648-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070215 Lab Sample ID: 580-87648-6  
 Matrix: Solid Lab File ID: 45G080719a013.D  
 Analysis Method: 8081B Date Collected: 07/13/2019 14:40  
 Extraction Method: 3546 Date Extracted: 07/24/2019 10:07  
 Sample wt/vol: 10.867(g) Date Analyzed: 08/07/2019 10:55  
 Con. Extract Vol.: 10(mL) Dilution Factor: 1  
 Injection Volume: 1(uL) GC Column: ZB-CLPest-2 ID: 0.25(mm)  
 % Moisture: 25.7 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 307709 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
5103-71-9	cis-Chlordane	ND		2.5	0.93
5103-74-2	trans-Chlordane	ND		3.7	0.40

*mw 8/4/19*

FORM I  
PCBS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87648-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070210 Lab Sample ID: 580-87648-1  
 Matrix: Solid Lab File ID: 35G080519a013.d  
 Analysis Method: 8082A Date Collected: 07/12/2019 10:15  
 Extraction Method: 3546 Date Extracted: 07/24/2019 10:07  
 Sample wt/vol: 10.353(g) Date Analyzed: 08/05/2019 16:15  
 Con. Extract Vol.: 10 (mL) Dilution Factor: 1  
 Injection Volume: 1 (uL) GC Column: ZB-CLPest-1 ID: 0.25 (mm)  
 % Moisture: 23.4 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 307509 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
12674-11-2	PCB-1016	ND		0.025	0.0093
11104-28-2	PCB-1221	ND		0.025	0.0053
11141-16-5	PCB-1232	ND		0.025	0.0062
53469-21-9	PCB-1242	ND		0.025	0.0044
12672-29-6	PCB-1248	ND		0.025	0.0037
11097-69-1	PCB-1254	ND		0.025	0.0047
11096-82-5	PCB-1260	ND		0.025	0.0093

CAS NO.	SURROGATE	%REC	Q	LIMITS
2051-24-3	DCB Decachlorobiphenyl	83		39-142
877-09-8	Tetrachloro-m-xylene	94		35-129

*mw 8/4/19*

FORM I  
PCBS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87648-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070211 Lab Sample ID: 580-87648-2  
 Matrix: Solid Lab File ID: 35G080519a014.d  
 Analysis Method: 8082A Date Collected: 07/12/2019 10:35  
 Extraction Method: 3546 Date Extracted: 07/24/2019 10:07  
 Sample wt/vol: 10.605(g) Date Analyzed: 08/05/2019 16:32  
 Con. Extract Vol.: 10(mL) Dilution Factor: 1  
 Injection Volume: 1(uL) GC Column: ZB-CLPest-1 ID: 0.25 (mm)  
 % Moisture: 35.7 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 307509 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
12674-11-2	PCB-1016	ND		0.029	0.011
11104-28-2	PCB-1221	ND		0.029	0.0062
11141-16-5	PCB-1232	ND		0.029	0.0072
53469-21-9	PCB-1242	ND		0.029	0.0051
12672-29-6	PCB-1248	ND		0.029	0.0043
11097-69-1	PCB-1254	ND		0.029	0.0054
11096-82-5	PCB-1260	ND		0.029	0.011

CAS NO.	SURROGATE	%REC	Q	LIMITS
2051-24-3	DCB Decachlorobiphenyl	75		39-142
877-09-8	Tetrachloro-m-xylene	85		35-129

*mw 8/4/19*

FORM I  
PCBS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87648-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070212 Lab Sample ID: 580-87648-3  
 Matrix: Solid Lab File ID: 35G080519a015.d  
 Analysis Method: 8082A Date Collected: 07/12/2019 16:00  
 Extraction Method: 3546 Date Extracted: 07/24/2019 10:07  
 Sample wt/vol: 10.035(g) Date Analyzed: 08/05/2019 16:49  
 Con. Extract Vol.: 10(mL) Dilution Factor: 1  
 Injection Volume: 1(uL) GC Column: ZB-CLPest-1 ID: 0.25 (mm)  
 % Moisture: 12.2 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 307509 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
12674-11-2	PCB-1016	ND		0.023	0.0084
11104-28-2	PCB-1221	ND		0.023	0.0048
11141-16-5	PCB-1232	ND		0.023	0.0056
53469-21-9	PCB-1242	ND		0.023	0.0040
12672-29-6	PCB-1248	ND		0.023	0.0033
11097-69-1	PCB-1254	ND		0.023	0.0042
11096-82-5	PCB-1260	ND		0.023	0.0084

CAS NO.	SURROGATE	%REC	Q	LIMITS
2051-24-3	DCB Decachlorobiphenyl	77		39-142
877-09-8	Tetrachloro-m-xylene	88		35-129

*mw 8/4/19*



FORM I  
PCBS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87648-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070213

Lab Sample ID: 580-87648-4

Matrix: Solid

Lab File ID: 35G080519a016.d

Analysis Method: 8082A

Date Collected: 07/12/2019 16:30

Extraction Method: 3546

Date Extracted: 07/24/2019 10:07

Sample wt/vol: 10.340(g)

Date Analyzed: 08/05/2019 17:06

Con. Extract Vol.: 10(mL)

Dilution Factor: 1

Injection Volume: 1(uL)

GC Column: ZB-CLPest-1 ID: 0.25 (mm)

% Moisture: 14.7

GPC Cleanup: (Y/N) N

Analysis Batch No.: 307509

Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
12674-11-2	PCB-1016	ND		0.023	0.0084
11104-28-2	PCB-1221	ND		0.023	0.0048
11141-16-5	PCB-1232	ND		0.023	0.0056
53469-21-9	PCB-1242	ND		0.023	0.0040
12672-29-6	PCB-1248	ND		0.023	0.0033
11097-69-1	PCB-1254	ND		0.023	0.0042
11096-82-5	PCB-1260	ND		0.023	0.0084

CAS NO.	SURROGATE	%REC	Q	LIMITS
2051-24-3	DCB Decachlorobiphenyl	116		39-142
877-09-8	Tetrachloro-m-xylene	981		35-129

*Handwritten signature/initials*

FORM I  
PCBS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87648-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070214 Lab Sample ID: 580-87648-5  
 Matrix: Solid Lab File ID: 35G080519a017.d  
 Analysis Method: 8082A Date Collected: 07/13/2019 14:30  
 Extraction Method: 3546 Date Extracted: 07/24/2019 10:07  
 Sample wt/vol: 10.390(g) Date Analyzed: 08/05/2019 17:23  
 Con. Extract Vol.: 10(mL) Dilution Factor: 1  
 Injection Volume: 1(uL) GC Column: ZB-CLPest-1 ID: 0.25(mm)  
 % Moisture: 11.6 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 307509 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
12674-11-2	PCB-1016	ND		0.022	0.0081
11104-28-2	PCB-1221	ND		0.022	0.0046
11141-16-5	PCB-1232	ND		0.022	0.0053
53469-21-9	PCB-1242	ND		0.022	0.0038
12672-29-6	PCB-1248	ND		0.022	0.0032
11097-69-1	PCB-1254	0.015	J	0.022	0.0040
11096-82-5	PCB-1260	ND		0.022	0.0081

CAS NO.	SURROGATE	%REC	Q	LIMITS
2051-24-3	DCB Decachlorobiphenyl	58		39-142
877-09-8	Tetrachloro-m-xylene	68		35-129

*mw 8/14/19*

FORM I  
PCBS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87648-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070215

Lab Sample ID: 580-87648-6

Matrix: Solid

Lab File ID: 35G080519a018.d

Analysis Method: 8082A

Date Collected: 07/13/2019 14:40

Extraction Method: 3546

Date Extracted: 07/24/2019 10:07

Sample wt/vol: 10.867(g)

Date Analyzed: 08/05/2019 17:40

Con. Extract Vol.: 10 (mL)

Dilution Factor: 1

Injection Volume: 1 (uL)

GC Column: ZB-CLPest-1 ID: 0.25 (mm)

% Moisture: 25.7

GPC Cleanup: (Y/N) N

Analysis Batch No.: 307509

Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
12674-11-2	PCB-1016	ND		0.025	0.0092
11104-28-2	PCB-1221	ND		0.025	0.0052
11141-16-5	PCB-1232	ND		0.025	0.0061
53469-21-9	PCB-1242	ND		0.025	0.0043
12672-29-6	PCB-1248	ND		0.025	0.0036
11097-69-1	PCB-1254	0.017	JQ	0.025	0.0046
11096-82-5	PCB-1260	ND		0.025	0.0092

CAS NO.	SURROGATE	%REC	Q	LIMITS
2051-24-3	DCB Decachlorobiphenyl	69		39-142
877-09-8	Tetrachloro-m-xylene	78		35-129

*MW 8/14/19*



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### MEMORANDUM

DATE: August 25, 2019

TO: Seth Wing, START-IV Project Manager, E & E, Seattle, WA

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington *mw*

SUBJ: **Organic Data Quality Assurance Review, May Creek Removal Action Site, Renton, Washington**

REF: TO: TO-68HE0718F0470 PAN: 1004530.0470.001.01

The data quality assurance review of 6 soil samples collected from the May Creek Removal Action site located in Renton, Washington, has been completed. Analysis for Extended Diesel Range Total Petroleum Hydrocarbons (Ecology Method NWTPH-Dx) was performed by Test America, Inc., Tacoma, Washington. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Manual Process (S2B/4VM).

The samples were numbered:    19070210       19070211       19070212       19070213  
   19070214       19070215

#### Data Qualifications:

##### 1. **Sample Holding Times: Acceptable.**

The samples were maintained at  $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ . The samples were collected on July 12 and 13, 2019, extracted by July 25, 2019, and analyzed by July 29, 2019, therefore meeting QC criteria of less than 14 days between collection and extraction for soil and preserved water samples and less than 40 days between extraction and analysis.

##### 2. **Initial Calibration: Acceptable.**

Calculations were verified as correct. All relative percent differences (RPDs) were within the laboratory control limits.

##### 3. **Continuing Calibration: Acceptable.**

Calculations were verified as correct. All percent differences (%Ds) were within the laboratory control limits.

##### 4. **Blanks: Satisfactory.**

A method blank was analyzed for each extraction batch for each matrix and analysis system. Diesel-range TPHs were not detected in the method blank, but motor oil-range TPHs were detected at 18.1 mg/kg in the July 25, 2019 blank; associated positive sample results were qualified as not detected (U).

**5. System Monitoring Compounds (SMC): Acceptable.**

All recoveries of the SMCs were greater than 10% and within QC limits.

**6. Blank Spike (BS) and BS Duplicate (BSD): Acceptable.**

BS and BSD recoveries were within QC limits.

**7. Duplicates: Acceptable.**

All spike duplicate results were within QC limits.

**8. Quantitation and Quantitation Limits: Acceptable.**

Sample concentrations were correctly calculated.

**9. Laboratory Contact: Not Required.**

No laboratory contact was required.

**10. Overall Assessment of Data for Use**

Partially from the laboratory case narrative: The following samples contained a hydrocarbon pattern in the diesel range; however, the elution pattern was later than the typical diesel fuel pattern used by the laboratory for quantitative purposes: 19070214 and 19070215. Associated positive results were qualified as estimated quantities with an unknown bias (JK).

A total of 12 results were validated in this data memorandum. No sample results were qualified as estimated quantities (J) based on duplicate precision outliers, spike accuracy outliers, holding time outliers, incorrect sample containers, or sample temperature outliers. No sample results were rejected (R).

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the analytical method(s), the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, and/or the Office of Emergency and Remedial Response Publication "National Functional Guidelines for Superfund Organic Methods Data Review, January 2017". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

H - The sample result is biased high.

J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

K - The bias of the sample is not known.

- L - The sample result is biased low.
- Q - Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.
- R - The data is rejected and unusable. The analyte may or may not be present in the sample.
- U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.

FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87648-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070210 Lab Sample ID: 580-87648-1  
 Matrix: Solid Lab File ID: 032F3801.D  
 Analysis Method: NWTPH-Dx Date Collected: 07/12/2019 10:15  
 Extraction Method: 3546 Date Extracted: 07/25/2019 09:43  
 Sample wt/vol: 10.061(g) Date Analyzed: 07/29/2019 05:13  
 Con. Extract Vol.: 10 (mL) Dilution Factor: 1  
 Injection Volume: 1 (uL) GC Column: ZB-1HT ID: 0.25 (mm)  
 % Moisture: 23.4 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 306831 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00163	#2 Diesel (C10-C24)	<del>ND</del>		65	16
STL00299	Motor Oil (>C24-C36)	33 J E	<i>[Signature]</i>	65	23

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	88		50-150

*[Handwritten Signature]*

FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87648-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070211 Lab Sample ID: 580-87648-2  
 Matrix: Solid Lab File ID: 033F3901.D  
 Analysis Method: NWTPH-Dx Date Collected: 07/12/2019 10:35  
 Extraction Method: 3546 Date Extracted: 07/25/2019 09:43  
 Sample wt/vol: 10.101(g) Date Analyzed: 07/29/2019 05:35  
 Con. Extract Vol.: 10 (mL) Dilution Factor: 1  
 Injection Volume: 1 (uL) GC Column: ZB-1HT ID: 0.25 (mm)  
 % Moisture: 35.7 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 306831 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00163	#2 Diesel (C10-C24)	<del>ND</del> <i>EM</i>		77	19
STL00299	Motor Oil (>C24-C36)	110 <i>EM</i>		77	27

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	87		50-150

*MIN 8-14-19*



FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87648-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070212 Lab Sample ID: 580-87648-3  
 Matrix: Solid Lab File ID: 034F4001.D  
 Analysis Method: NWTPH-Dx Date Collected: 07/12/2019 16:00  
 Extraction Method: 3546 Date Extracted: 07/25/2019 09:43  
 Sample wt/vol: 10.373(g) Date Analyzed: 07/29/2019 05:57  
 Con. Extract Vol.: 10 (mL) Dilution Factor: 1  
 Injection Volume: 1 (uL) GC Column: ZB-1HT ID: 0.25 (mm)  
 % Moisture: 12.2 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 306831 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00163	#2 Diesel (C10-C24)	ND		55	14
STL00299	Motor Oil (>C24-C36)	ND		55	19

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	88		50-150

*mw 8/4/19*

FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87648-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070213 Lab Sample ID: 580-87648-4  
 Matrix: Solid Lab File ID: 035F4101.D  
 Analysis Method: NWTPH-Dx Date Collected: 07/12/2019 16:30  
 Extraction Method: 3546 Date Extracted: 07/25/2019 09:43  
 Sample wt/vol: 10.867(g) Date Analyzed: 07/29/2019 06:19  
 Con. Extract Vol.: 10(mL) Dilution Factor: 1  
 Injection Volume: 1(uL) GC Column: ZB-1HT ID: 0.25(mm)  
 % Moisture: 14.7 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 306831 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00163	#2 Diesel (C10-C24)	ND		54	13
STL00299	Motor Oil (>C24-C36)	ND		54	19

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	78		50-150

*mm 84-15-1*

FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87648-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070214 Lab Sample ID: 580-87648-5  
 Matrix: Solid Lab File ID: 073B2301.D  
 Analysis Method: NWTPH-Dx Date Collected: 07/13/2019 14:30  
 Extraction Method: 3546 Date Extracted: 07/26/2019 13:40  
 Sample wt/vol: 11.946(g) Date Analyzed: 07/29/2019 22:37  
 Con. Extract Vol.: 10(mL) Dilution Factor: 1  
 Injection Volume: 1(uL) GC Column: ZB-1HT ID: 0.25(mm)  
 % Moisture: 11.6 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 306939 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00163	#2 Diesel (C10-C24)	21	JR	47	12
STL00299	Motor Oil (>C24-C36)	110	JK	47	17

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	111		50-150

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FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87648-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070215 Lab Sample ID: 580-87648-6  
 Matrix: Solid Lab File ID: 076B2601.D  
 Analysis Method: NWTPH-Dx Date Collected: 07/13/2019 14:40  
 Extraction Method: 3546 Date Extracted: 07/26/2019 13:40  
 Sample wt/vol: 11.733(g) Date Analyzed: 07/29/2019 23:44  
 Con. Extract Vol.: 10(mL) Dilution Factor: 1  
 Injection Volume: 1(uL) GC Column: ZB-1HT ID: 0.25(mm)  
 % Moisture: 25.7 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 306939 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00163	#2 Diesel (C10-C24)	21	<i>Q</i>	57	14
STL00299	Motor Oil (>C24-C36)	110	<i>OK</i>	57	20

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	107		50-150

*mw 8-14-19*



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### MEMORANDUM

DATE: August 9, 2019

TO: Seth Wing, START-IV Project Manager, E & E, Seattle, WA

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington *MW*

SUBJ: **Organic Data Quality Assurance Review, May Creek Removal Action Site, Renton, Washington**

REF: TO: TO-68HE0718F0470 PAN: 1004530.0470.001.01

The data quality assurance review of eight soil samples collected from the May Creek Removal Action site located in Renton, Washington, has been completed. Analysis for Extended Diesel Range Total Petroleum Hydrocarbons (Ecology Method NWTPH-Dx) was performed by Test America, Inc., Spokane, Washington. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Manual Process (S2B/4VM).

The samples were numbered:

19070130	19070131	19070132	19070133	19070134	19070135
19070136	19070137				

#### Data Qualifications:

**1. Sample Holding Times: Acceptable.**

The samples were maintained at  $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ . The samples were collected on July 12, 2019, extracted on July 16, 2019, and analyzed by July 17, 2019, therefore meeting QC criteria of less than 14 days between collection and extraction for soil samples and less than 40 days between extraction and analysis.

**2. Initial Calibration: Acceptable.**

Calculations were verified as correct. All relative percent differences (RPDs) were within the laboratory control limits.

**3. Continuing Calibration: Acceptable.**

Calculations were verified as correct. All percent differences (%Ds) were within the laboratory control limits.

**4. Blanks: Acceptable.**

A method blank was analyzed for each extraction batch for each matrix and analysis system.

Diesel- and motor oil-range TPHs were not detected in the method blank.

**5. System Monitoring Compounds (SMC): Acceptable.**

All recoveries of the SMCs were greater than 10% and within QC limits.

**6. Matrix Spike (MS) and MS Duplicate (MSD): Satisfactory.**

MS and MSD results were within QC limits except when interferences prevented acceptable recovery; no actions were taken based on MS/MSD outliers.

**7. Blank Spike (BS) and BS Duplicate (BSD): Acceptable.**

BS and BSD recoveries were within QC limits.

**8. Duplicates: Acceptable.**

All spike duplicate results were within QC limits.

**9. Quantitation and Quantitation Limits: Acceptable.**

Sample concentrations were correctly calculated.

**10. Laboratory Contact: Not Required.**

No laboratory contact was required.

**11. Overall Assessment of Data for Use**

A total of 16 results were validated in this data memorandum. No sample results were qualified as estimated quantities (J) based on duplicate precision outliers, spike accuracy outliers, holding time outliers, incorrect sample containers, or sample temperature outliers. No sample results were rejected (R).

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the analytical method(s), the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, and/or the Office of Emergency and Remedial Response Publication "National Functional Guidelines for Superfund Organic Methods Data Review, January 2017". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

H - The sample result is biased high.

J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

K - The bias of the sample is not known.

- L - The sample result is biased low.
- Q - Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.
- R - The data is rejected and unusable. The analyte may or may not be present in the sample.
- U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.

FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87649-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070130 Lab Sample ID: 580-87649-1  
 Matrix: Solid Lab File ID: 007F0701.D  
 Analysis Method: NWTPH-Dx Date Collected: 07/12/2019 15:18  
 Extraction Method: 3546 Date Extracted: 07/16/2019 12:08  
 Sample wt/vol: 10.546(g) Date Analyzed: 07/16/2019 21:14  
 Con. Extract Vol.: 10(mL) Dilution Factor: 10  
 Injection Volume: 1(uL) GC Column: ZB-1HT ID: 0.25(mm)  
 % Moisture: 17.7 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 305807 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00163	#2 Diesel (C10-C24)	160	JQ	580	140
STL00299	Motor Oil (>C24-C36)	1700		580	200

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	78		50-150

*mw 8/9/19*



FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87649-1  
SDG No.: \_\_\_\_\_  
Client Sample ID: 19070131 Lab Sample ID: 580-87649-2  
Matrix: Solid Lab File ID: 008F0801.D  
Analysis Method: NWTPH-Dx Date Collected: 07/12/2019 15:24  
Extraction Method: 3546 Date Extracted: 07/16/2019 12:08  
Sample wt/vol: 10.635(g) Date Analyzed: 07/16/2019 21:36  
Con. Extract Vol.: 10(mL) Dilution Factor: 40  
Injection Volume: 1(uL) GC Column: ZB-1HT ID: 0.25 (mm)  
% Moisture: 18.3 GPC Cleanup: (Y/N) N  
Analysis Batch No.: 305807 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00163	#2 Diesel (C10-C24)	ND		2300	570
STL00299	Motor Oil (>C24-C36)	8500		2300	810

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	62		50-150

*ma 8949*

FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87649-1  
SDG No.: \_\_\_\_\_  
Client Sample ID: 19070132 Lab Sample ID: 580-87649-3  
Matrix: Solid Lab File ID: 009F0901.D  
Analysis Method: NWTPH-Dx Date Collected: 07/12/2019 15:36  
Extraction Method: 3546 Date Extracted: 07/16/2019 12:08  
Sample wt/vol: 10.383(g) Date Analyzed: 07/16/2019 21:59  
Con. Extract Vol.: 10(mL) Dilution Factor: 1  
Injection Volume: 1(uL) GC Column: ZB-1HT ID: 0.25(mm)  
% Moisture: 34.8 GPC Cleanup: (Y/N) N  
Analysis Batch No.: 305807 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00163	#2 Diesel (C10-C24)	52	JQ	74	18
STL00299	Motor Oil (>C24-C36)	400		74	26

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	84		50-150

*MW 8919*

FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87649-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070133 Lab Sample ID: 580-87649-4  
 Matrix: Solid Lab File ID: 010F1001.D  
 Analysis Method: NWTPH-Dx Date Collected: 07/12/2019 17:41  
 Extraction Method: 3546 Date Extracted: 07/16/2019 12:08  
 Sample wt/vol: 10.966(g) Date Analyzed: 07/16/2019 22:22  
 Con. Extract Vol.: 10 (mL) Dilution Factor: 1  
 Injection Volume: 1 (uL) GC Column: ZB-1HT ID: 0.25 (mm)  
 % Moisture: 29.6 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 305807 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00163	#2 Diesel (C10-C24)	43	JQ	65	16
STL00299	Motor Oil (>C24-C36)	240		65	23

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	87		50-150

*MW 8919*

FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87649-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070134 Lab Sample ID: 580-87649-5  
 Matrix: Solid Lab File ID: 011F1101.D  
 Analysis Method: NWTPH-Dx Date Collected: 07/12/2019 17:00  
 Extraction Method: 3546 Date Extracted: 07/16/2019 12:08  
 Sample wt/vol: 11.187(g) Date Analyzed: 07/16/2019 22:44  
 Con. Extract Vol.: 10(mL) Dilution Factor: 1  
 Injection Volume: 1(uL) GC Column: ZB-1HT ID: 0.25(mm)  
 % Moisture: 7.2 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 305807 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00163	#2 Diesel (C10-C24)	20	JQ	48	12
STL00299	Motor Oil (>C24-C36)	190		48	17

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	79		50-150

*MW 8919*

FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87649-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070135 Lab Sample ID: 580-87649-6  
 Matrix: Solid Lab File ID: 012F1201.D  
 Analysis Method: NWTPH-Dx Date Collected: 07/12/2019 17:08  
 Extraction Method: 3546 Date Extracted: 07/16/2019 12:08  
 Sample wt/vol: 12.768(g) Date Analyzed: 07/16/2019 23:06  
 Con. Extract Vol.: 10(mL) Dilution Factor: 1  
 Injection Volume: 1(uL) GC Column: ZB-1HT ID: 0.25(mm)  
 % Moisture: 14.7 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 305807 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00163	#2 Diesel (C10-C24)	23	JQ	46	11
STL00299	Motor Oil (>C24-C36)	230		46	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	80		50-150

*nm 8-9-19*

FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87649-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070136 Lab Sample ID: 580-87649-7  
 Matrix: Solid Lab File ID: 013F1301.D  
 Analysis Method: NWTPH-Dx Date Collected: 07/12/2019 17:17  
 Extraction Method: 3546 Date Extracted: 07/16/2019 12:08  
 Sample wt/vol: 10.879(g) Date Analyzed: 07/16/2019 23:29  
 Con. Extract Vol.: 10(mL) Dilution Factor: 10  
 Injection Volume: 1(uL) GC Column: ZB-1HT ID: 0.25(mm)  
 % Moisture: 6.4 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 305807 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00163	#2 Diesel (C10-C24)	ND		490	120
STL00299	Motor Oil (>C24-C36)	1000		490	170

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	73		50-150

*MW 8949*

FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87649-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070137 Lab Sample ID: 580-87649-8  
 Matrix: Solid Lab File ID: 015F1501.D  
 Analysis Method: NWTPH-Dx Date Collected: 07/12/2019 17:26  
 Extraction Method: 3546 Date Extracted: 07/16/2019 12:08  
 Sample wt/vol: 10.924(g) Date Analyzed: 07/17/2019 00:14  
 Con. Extract Vol.: 10(mL) Dilution Factor: 4  
 Injection Volume: 1(uL) GC Column: ZB-1HT ID: 0.25(mm)  
 % Moisture: 6.7 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 305807 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00163	#2 Diesel (C10-C24)	83	J <i>Q</i>	200	48
STL00299	Motor Oil (>C24-C36)	980	<i>FLW</i>	200	69

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	65		50-150

*mw 8-9-19*





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### MEMORANDUM

DATE: January 8, 2020

TO: Seth Wing, START-IV Project Manager, E & E, Seattle, WA

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington *MW*

SUBJ: **Inorganic Data Quality Assurance Review, May Creek Removal Action Site, Renton, Washington**

REF: TO: TO-68HE0718F0470 PAN: 1004530.0470.001.01

The data quality assurance review of 3 soil samples collected from the May Creek Removal Action site in Renton, Washington, has been completed. Target Analyte List (TAL) metals analyses (EPA Methods 6010 and 7471) were performed by Test America, Inc., Tacoma, Washington. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Manual Process (S2B/4VM).

The samples were numbered: 19070207 19070208 19070209

#### Data Qualifications:

##### **1. Sample Holding Times: Acceptable.**

The samples were maintained at  $< 6^{\circ}\text{C}$  (only applies to mercury). The samples were collected on July 11, 2019, and were analyzed by July 18, 2019, therefore meeting QC criteria of less than 6 months between collection, extraction, and analysis (28 days for mercury).

##### **2. Initial and Continuing Calibration: Acceptable.**

A minimum of one calibration standard and a blank were analyzed at the beginning of the ICP analysis sequence and after every 10 samples. No results were greater than 110% of the highest calibration standard. All ICP recoveries were within the QC limits. All AA recoveries were within QC limits and the initial calibration correlation coefficient was  $> 0.995$ .

##### **3. Blanks: Satisfactory.**

A preparation blank was analyzed for each 20 samples or per matrix per concentration level. Blanks were analyzed after each Initial or Continuing Calibration Verification. There were no detections in any blanks that potentially affected sample results except cadmium in CCB3; associated positive results less than the reporting limit were qualified as not detected (U).

##### **4. ICP Interference Check Sample: Acceptable.**

An Interference Check Sample (ICS) was analyzed at the beginning of each sequence or at least twice every 8 hours, whichever was more frequent. All applicable ICS (solution AB) results were within QC limits of 80% - 120% recovery.



**5. Matrix Spike Analysis: Acceptable.**

A matrix spike analysis was performed per SDG or per matrix per concentration level, whichever was more frequent. Spike recoveries were within the QC limits.

**7. Duplicate Analysis: Acceptable.**

A laboratory spike duplicate analysis was performed per SDG or per matrix per concentration level, whichever was more frequent. All spike duplicate results were within QC limits.

**8. Laboratory Control Sample Analysis: Acceptable.**

A Laboratory Control Sample (LCS) was analyzed per SDG per matrix. All LCS results were within the established control limits.

**9. Overall Assessment of Data for Use**

This memo was updated in January 2020 to include silver results which were inadvertently omitted.

A total of 69 results were validated in this data memorandum. No sample results were qualified as estimated quantities (J) based on duplicate precision outliers, holding time outliers, incorrect sample containers, sample temperature outliers, or spike accuracy outliers. No sample results were rejected (R).

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the analytical method(s), the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, and/or the Office of Emergency and Remedial Response Publication "National Functional Guidelines for Superfund Inorganic Methods Data Review, January 2017". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

H - The sample result is biased high.

J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

K - The bias of the sample is not known.

L - The sample result is biased low.

Q - Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.

R - The data is rejected and unusable. The analyte may or may not be present in the sample.

U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.

UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.

1A-IN  
INORGANIC ANALYSIS DATA SHEET  
METALS

Client Sample ID: 19070207

Lab Sample ID: 580-87651-1

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87651-1

SDG ID.:

Matrix: Solid

Date Sampled: 07/11/2019 15:00

Reporting Basis: DRY

Date Received: 07/13/2019 09:48

% Solids: 85.4

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7429-90-5	Aluminum	7900	58	7.7	mg/Kg			1	6010D
7440-36-0	Antimony	1.3	2.3	0.20	mg/Kg	J Q		1	6010D
7440-38-2	Arsenic	3.8	2.3	0.19	mg/Kg			1	6010D
7440-39-3	Barium	52	0.39	0.061	mg/Kg		FW	1	6010D
7440-41-7	Beryllium	0.13	0.78	0.012	mg/Kg	J Q		1	6010D
7440-43-9	Cadmium	0.36 <i>mu</i>	0.78	0.038	mg/Kg	J Q <i>mu</i>		1	6010D
7440-70-2	Calcium	20000	43	7.8	mg/Kg			1	6010D
7440-47-3	Chromium	22	1.0	0.17	mg/Kg			1	6010D
7440-48-4	Cobalt	4.5	0.78	0.019	mg/Kg			1	6010D
7440-50-8	Copper	18	1.9	0.31	mg/Kg			1	6010D
7439-89-6	Iron	9900	50	12	mg/Kg			1	6010D
7439-92-1	Lead	31	1.2	0.17	mg/Kg			1	6010D
7439-95-4	Magnesium	7300	43	6.1	mg/Kg			1	6010D
7439-96-5	Manganese	230	1.6	0.30	mg/Kg			1	6010D
7440-02-0	Nickel	18	0.78	0.080	mg/Kg			1	6010D
7440-09-7	Potassium	350	130	5.3	mg/Kg		FW	1	6010D
7782-49-2	Selenium	ND	3.9	0.31	mg/Kg			1	6010D
7440-22-4	Silver	ND <i>mu</i>	1.9	0.43	mg/Kg			1	6010D
7440-23-5	Sodium	160	78	15	mg/Kg			1	6010D
7440-28-0	Thallium	ND <i>mu</i>	3.9	0.33	mg/Kg			1	6010D
7440-62-2	Vanadium	25	1.6	0.20	mg/Kg			1	6010D
7440-66-6	Zinc	91	3.1	0.74	mg/Kg			1	6010D
7439-97-6	Mercury	0.059	0.026	0.0078	mg/Kg			1	7471A

1A-IN  
INORGANIC ANALYSIS DATA SHEET  
METALS

Client Sample ID: 19070208

Lab Sample ID: 580-87651-2

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87651-1

SDG ID.:

Matrix: Solid

Date Sampled: 07/11/2019 15:10

Reporting Basis: DRY

Date Received: 07/13/2019 09:48

% Solids: 85.3

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7429-90-5	Aluminum	12000	56	7.4	mg/Kg			1	6010D
7440-36-0	Antimony	2.7	2.2	0.20	mg/Kg			1	6010D
7440-38-2	Arsenic	7.8	2.2	0.18	mg/Kg			1	6010D
7440-39-3	Barium	110	0.37	0.059	mg/Kg			1	6010D
7440-41-7	Beryllium	0.20	0.75	0.011	mg/Kg	J		1	6010D
7440-43-9	Cadmium	0.42	0.75	0.037	mg/Kg	J		1	6010D
7440-70-2	Calcium	13000	41	7.5	mg/Kg			1	6010D
7440-47-3	Chromium	57	0.97	0.16	mg/Kg			1	6010D
7440-48-4	Cobalt	7.1	0.75	0.019	mg/Kg			1	6010D
7440-50-8	Copper	41	1.9	0.30	mg/Kg			1	6010D
7439-89-6	Iron	15000	48	12	mg/Kg			1	6010D
7439-92-1	Lead	100	1.1	0.17	mg/Kg			1	6010D
7439-95-4	Magnesium	4500	41	5.9	mg/Kg			1	6010D
7439-96-5	Manganese	310	1.5	0.29	mg/Kg			1	6010D
7440-02-0	Nickel	49	0.75	0.077	mg/Kg			1	6010D
7440-09-7	Potassium	390	120	5.1	mg/Kg			1	6010D
7782-49-2	Selenium	ND	3.7	0.30	mg/Kg			1	6010D
7440-22-4	Silver	ND	1.9	0.42	mg/Kg			1	6010D
7440-23-5	Sodium	190	75	14	mg/Kg			1	6010D
7440-28-0	Thallium	ND	3.7	0.31	mg/Kg			1	6010D
7440-62-2	Vanadium	37	1.5	0.19	mg/Kg			1	6010D
7440-66-6	Zinc	150	3.0	0.71	mg/Kg			1	6010D
7439-97-6	Mercury	0.18	0.030	0.0091	mg/Kg			1	7471A

*Handwritten signature/initials*

1A-IN  
INORGANIC ANALYSIS DATA SHEET  
METALS

Client Sample ID: 19070209

Lab Sample ID: 580-87651-3

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87651-1

SDG ID.:

Matrix: Solid

Date Sampled: 07/11/2019 16:05

Reporting Basis: DRY

Date Received: 07/13/2019 09:48

% Solids: 83.2

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7429-90-5	Aluminum	18000	59	7.9	mg/Kg			1	6010D
7440-36-0	Antimony	0.33	2.4	0.21	mg/Kg	J		1	6010D
7440-38-2	Arsenic	2.7	2.4	0.20	mg/Kg			1	6010D
7440-39-3	Barium	63	0.39	0.062	mg/Kg		P	1	6010D
7440-41-7	Beryllium	0.24	0.79	0.012	mg/Kg	J		1	6010D
7440-43-9	Cadmium	0.17	0.79	0.039	mg/Kg	J		1	6010D
7440-70-2	Calcium	2800	43	7.9	mg/Kg			1	6010D
7440-47-3	Chromium	21	1.0	0.17	mg/Kg			1	6010D
7440-48-4	Cobalt	8.0	0.79	0.020	mg/Kg			1	6010D
7440-50-8	Copper	19	2.0	0.32	mg/Kg			1	6010D
7439-89-6	Iron	18000	51	12	mg/Kg			1	6010D
7439-92-1	Lead	1.9	1.2	0.18	mg/Kg			1	6010D
7439-95-4	Magnesium	4000	43	6.3	mg/Kg			1	6010D
7439-96-5	Manganese	340	1.6	0.30	mg/Kg			1	6010D
7440-02-0	Nickel	21	0.79	0.081	mg/Kg			1	6010D
7440-09-7	Potassium	340	130	5.4	mg/Kg			1	6010D
7782-49-2	Selenium	ND	3.9	0.31	mg/Kg			1	6010D
7440-22-4	Silver	ND	2.0	0.44	mg/Kg			1	6010D
7440-23-5	Sodium	210	79	15	mg/Kg			1	6010D
7440-28-0	Thallium	ND	3.9	0.33	mg/Kg			1	6010D
7440-62-2	Vanadium	40	1.6	0.21	mg/Kg			1	6010D
7440-66-6	Zinc	31	3.2	0.75	mg/Kg			1	6010D
7439-97-6	Mercury	0.029	0.025	0.0075	mg/Kg			1	7471A



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### MEMORANDUM

DATE: September 9, 2019

TO: Seth Wing, START-IV Project Manager, E & E, Seattle, WA

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington MW

SUBJ: **Organic Data Quality Assurance Review, May Creek Removal Action Site, Renton, Washington**

REF: TO: TO-68HE0718F0470 PAN: 1004530.0470 001.01

The data quality assurance review of 4 soil samples collected from the May Creek Removal Action site in Renton, Washington, has been completed. Volatile Organic Compound (VOC) analysis (EPA Method 8260) was performed by Test America, Inc., Tacoma, Washington. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Manual Process (S2B/4VM).

The samples were numbered. 19070207 19070208 19070209 19070605

#### Data Qualifications:

**1. Sample Holding Times: Acceptable.**

The samples were maintained within the QC limits of  $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ . The samples were collected on July 11 and 12, 2019, were received at the laboratory within 48 hours of collection, and were analyzed by July 26, 2019, therefore meeting QC criteria of less than 14 days between collection and analysis for soil samples.

**2. Tuning: Acceptable.**

Tuning was performed at the beginning of each 12-hour analysis sequence. All results were within QC limits.

**3. Initial Calibration: Acceptable.**

All average Relative Response Factors (RRFs) were within the QC limits. All applicable Relative Standard Deviations (RSDs) and/or correlation coefficients were within QC limits.

**4. Continuing Calibration: Acceptable.**

All RRFs were within the QC limits. Applicable percent differences were within QC limits.

**5. Blanks: Satisfactory.**

A method blank was analyzed for each 20 sample batch per matrix. There were no detections in any method blank. There were no detections in the trip blank except chloroform (0.45 ug/kg); no actions were taken as this analyte was not detected in the field samples.

**6. System Monitoring Compounds (SMCs): Acceptable.**

All SMC recoveries were within QC limits.

**7. Blank Spike (BS)/BS Duplicate (BSD) Analysis: Acceptable.**

BS and BSD analyses were performed per SDG or per matrix per concentration level, whichever was more frequent. All recoveries were within QC limits.

**8. Spike Duplicate Analysis: Satisfactory.**

Spike duplicate analyses were performed per SDG or per matrix per concentration level, whichever was more frequent. All spike duplicate results were within QC limits except 1,1,1-tri-chloroethane, 1,1-dichloropropene, bromochloromethane, and carbon tetrachloride. No actions were taken based on duplicate outliers alone.

**9. Internal Standards: Acceptable.**

All internal standards were within  $\pm 30$  seconds of the continuing calibration internal standard retention times. All area counts were within 50 % to 200 % of the continuing calibration area counts.

**10. Overall Assessment of Data for Use**

From the laboratory case narrative: the positive xylenes and toluene results in sample 19070209 are likely carryover from previous analyses; no actions were taken based on this information.

A total of 240 results were validated in this data memorandum. No sample results were qualified as estimated quantities (J) based on duplicate precision outliers, spike accuracy outliers, holding time outliers, incorrect sample containers, or sample temperature outliers. No sample results were rejected (R).

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the analytical method(s), the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, and/or the Office of Emergency and Remedial Response Publication "National Functional Guidelines for Superfund Organic Methods Data Review, January 2017". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

H - The sample result is biased high.

J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

K - The bias of the sample is not known.

L - The sample result is biased low.

N - The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification".

NJ - The analyte has been "tentatively identified" or "presumptively" as present and the associated numerical value is the estimated concentration in the sample.

- Q - Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.
- R - The data is rejected and unusable. The analyte may or may not be present in the sample.
- U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87651-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070207

Lab Sample ID: 580-87651-1

Matrix: Solid

Lab File ID: 072419\_0052.D

Analysis Method: 8260C

Date Collected: 07/11/2019 15:00

Sample wt/vol: 6.215(g)

Date Analyzed: 07/25/2019 07:28

Soil Aliquot Vol: \_\_\_\_\_

Dilution Factor: 1

Soil Extract Vol.: \_\_\_\_\_

GC Column: DB-VRX ID: 0.25 (mm)

% Moisture: 14.6

Level: (low/med) Low

Analysis Batch No.: 306556

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-71-8	Dichlorodifluoromethane	ND		1.9	0.46
74-87-3	Chloromethane	ND		4.7	0.88
75-01-4	Vinyl chloride	ND		1.9	0.28
74-83-9	Bromomethane	ND		0.94	0.20
75-00-3	Chloroethane	ND		9.4	1.5
75-69-4	Trichlorofluoromethane	ND		1.9	0.28
75-35-4	1,1-Dichloroethene	ND		4.7	1.0
75-09-2	Methylene Chloride	ND		38	9.3
156-60-5	trans-1,2-Dichloroethene	ND		1.9	0.38
75-34-3	1,1-Dichloroethane	ND		0.94	0.18
594-20-7	2,2-Dichloropropane	ND		4.7	0.85
156-59-2	cis-1,2-Dichloroethene	ND		2.8	0.57
74-97-5	Bromochloromethane	ND	*	1.9	0.24
67-66-3	Chloroform	ND	*	1.9	0.28
71-55-6	1,1,1-Trichloroethane	ND	*	1.9	0.28
56-23-5	Carbon tetrachloride	ND	*	1.9	0.28
563-58-6	1,1-Dichloropropene	ND	* w	1.9	0.28
71-43-2	Benzene	18		1.9	0.37
107-06-2	1,2-Dichloroethane	ND		0.94	0.19
79-01-6	Trichloroethene	ND		1.9	0.28
78-87-5	1,2-Dichloropropane	ND		1.9	0.38
74-95-3	Dibromomethane	ND		0.94	0.16
75-27-4	Bromodichloromethane	ND		0.94	0.17
10061-01-5	cis-1,3-Dichloropropene	ND		0.94	0.19
10061-02-6	trans-1,3-Dichloropropene	ND		9.4	1.3
79-00-5	1,1,2-Trichloroethane	ND		1.9	0.24
127-18-4	Tetrachloroethene	ND		1.9	0.38
142-28-9	1,3-Dichloropropane	4.1		1.9	0.22
124-48-1	Dibromochloromethane	ND		1.4	0.25
106-93-4	1,2-Dibromoethane	ND		0.94	0.19
108-90-7	Chlorobenzene	ND		1.9	0.24
100-41-4	Ethylbenzene	93		1.9	0.39
630-20-6	1,1,1,2-Tetrachloroethane	ND		2.8	0.56
79-34-5	1,1,2,2-Tetrachloroethane	ND		3.8	0.85
100-42-5	Styrene	ND		2.8	0.70
75-25-2	Bromoform	ND		4.7	0.79

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FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87651-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070207 Lab Sample ID: 580-87651-1  
 Matrix: Solid Lab File ID: 072419\_0052.D  
 Analysis Method: 8260C Date Collected: 07/11/2019 15:00  
 Sample wt/vol: 6.215(g) Date Analyzed: 07/25/2019 07:28  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: DB-VRX ID: 0.25 (mm)  
 % Moisture: 14.6 Level: (low/med) Low  
 Analysis Batch No.: 306556 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
98-82-8	Isopropylbenzene	11		1.9	0.43
108-86-1	Bromobenzene	ND		9.4	0.94
103-65-1	N-Propylbenzene	28		4.7	0.72
96-18-4	1,2,3-Trichloropropane	ND		4.7	0.94
95-49-8	2-Chlorotoluene	ND		4.7	0.88
106-43-4	4-Chlorotoluene	ND		4.7	0.94
98-06-6	t-Butylbenzene	ND		2.8	0.62
135-98-8	sec-Butylbenzene	ND		2.8	0.63
541-73-1	1,3-Dichlorobenzene	ND		4.7	1.0
99-87-6	4-Isopropyltoluene	3.6		1.9	0.38
106-46-7	1,4-Dichlorobenzene	ND		4.7	0.92
104-51-8	n-Butylbenzene	100		2.8	0.59
95-50-1	1,2-Dichlorobenzene	ND		9.4	1.2
96-12-8	1,2-Dibromo-3-Chloropropane	ND		9.4	1.5
120-82-1	1,2,4-Trichlorobenzene	ND		1.9	0.40
87-61-6	1,2,3-Trichlorobenzene	ND		2.8	0.57
87-68-3	Hexachlorobutadiene	ND		2.8	0.57
91-20-3	Naphthalene	43		9.4	1.7
1634-04-4	Methyl tert-butyl ether	ND		1.9	0.28

CAS NO.	SURROGATE	%REC	Q	LIMITS
2037-26-5	Toluene-d8 (Surr)	100		80-120
460-00-4	4-Bromofluorobenzene (Surr)	103		80-120
1868-53-7	Dibromofluoromethane (Surr)	102		80-120
98-08-8	Trifluorotoluene (Surr)	95		80-120
17060-07-0	1,2-Dichloroethane-d4 (Surr)	119		80-121

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FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87651-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070207 Lab Sample ID: 580-87651-1  
 Matrix: Solid Lab File ID: G2519008.D  
 Analysis Method: 8260C Date Collected: 07/11/2019 15:00  
 Sample wt/vol: 12.722(g) Date Analyzed: 07/25/2019 19:55  
 Soil Aliquot Vol: 1.075 (mL) Dilution Factor: 1  
 Soil Extract Vol.: 10(mL) GC Column: DB-VRX ID: 0.25 (mm)  
 % Moisture: 14.6 Level: (low/med) Medium  
 Analysis Batch No.: 306707 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
108-88-3	Toluene	1500		160	15
95-47-6	o-Xylene	5300		65	15
108-67-8	1,3,5-Trimethylbenzene	3600		44	8.3

CAS NO.	SURROGATE	%REC	Q	LIMITS
2037-26-5	Toluene-d8 (Surr)	109		80-120
460-00-4	4-Bromofluorobenzene (Surr)	105		80-120
1868-53-7	Dibromofluoromethane (Surr)	101		80-120
98-08-8	Trifluorotoluene (Surr)	107		80-120
17060-07-0	1,2-Dichloroethane-d4 (Surr)	99		80-121

*mw 9-9-19*

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87651-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070207 DL Lab Sample ID: 580-87651-1 DL  
 Matrix: Solid Lab File ID: G2619009.D  
 Analysis Method: 8260C Date Collected: 07/11/2019 15:00  
 Sample wt/vol: 12.722(g) Date Analyzed: 07/26/2019 13:36  
 Soil Aliquot Vol: 100 (uL) Dilution Factor: 1  
 Soil Extract Vol.: 10 (mL) GC Column: DB-VRX ID: 0.25 (mm)  
 % Moisture: 14.6 Level: (low/med) Medium  
 Analysis Batch No.: 306783 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
179601-23-1	m-Xylene & p-Xylene	9500	H JL	2300	170
95-63-6	1,2,4-Trimethylbenzene	9900	H JL	470	160

CAS NO.	SURROGATE	%REC	Q	LIMITS
2037-26-5	Toluene-d8 (Surr)	102		80-120
460-00-4	4-Bromofluorobenzene (Surr)	104		80-120
1868-53-7	Dibromofluoromethane (Surr)	105		80-120
98-08-8	Trifluorotoluene (Surr)	110		80-120
17060-07-0	1,2-Dichloroethane-d4 (Surr)	99		80-121

*mw9919*

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87651-1

SDG No.:

Client Sample ID: 19070208

Lab Sample ID: 580-87651-2

Matrix: Solid

Lab File ID: 072419\_0053.D

Analysis Method: 8260C

Date Collected: 07/11/2019 15:10

Sample wt/vol: 5.821(g)

Date Analyzed: 07/25/2019 07:53

Soil Aliquot Vol:

Dilution Factor: 1

Soil Extract Vol.:

GC Column: DB-VRX ID: 0.25 (mm)

% Moisture: 14.7

Level: (low/med) Low

Analysis Batch No.: 306556

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-71-8	Dichlorodifluoromethane	ND		2.0	0.49
74-87-3	Chloromethane	ND		5.0	0.94
75-01-4	Vinyl chloride	ND		2.0	0.30
74-83-9	Bromomethane	ND		1.0	0.21
75-00-3	Chloroethane	ND		10	1.6
75-69-4	Trichlorofluoromethane	ND		2.0	0.30
75-35-4	1,1-Dichloroethene	ND		5.0	1.1
75-09-2	Methylene Chloride	ND		40	10
156-60-5	trans-1,2-Dichloroethene	ND		2.0	0.40
75-34-3	1,1-Dichloroethane	ND		1.0	0.19
594-20-7	2,2-Dichloropropane	ND		5.0	0.91
156-59-2	cis-1,2-Dichloroethene	ND		3.0	0.60
74-97-5	Bromochloromethane	ND		2.0	0.25
67-66-3	Chloroform	ND		2.0	0.30
71-55-6	1,1,1-Trichloroethane	ND		2.0	0.30
56-23-5	Carbon tetrachloride	ND		2.0	0.30
563-58-6	1,1-Dichloropropene	ND		2.0	0.30
71-43-2	Benzene	1.4	J	2.0	0.39
107-06-2	1,2-Dichloroethane	ND		1.0	0.20
79-01-6	Trichloroethene	ND		2.0	0.30
78-87-5	1,2-Dichloropropane	ND		2.0	0.40
74-95-3	Dibromomethane	ND		1.0	0.17
75-27-4	Bromodichloromethane	ND		1.0	0.18
10061-01-5	cis-1,3-Dichloropropene	ND		1.0	0.20
108-88-3	Toluene	67		10	1.3
10061-02-6	trans-1,3-Dichloropropene	ND		10	1.4
79-00-5	1,1,2-Trichloroethane	ND		2.0	0.25
127-18-4	Tetrachloroethene	ND		2.0	0.40
142-28-9	1,3-Dichloropropane	ND		2.0	0.23
124-48-1	Dibromochloromethane	ND		1.5	0.27
106-93-4	1,2-Dibromoethane	ND		1.0	0.20
108-90-7	Chlorobenzene	ND		2.0	0.25
100-41-4	Ethylbenzene	21		2.0	0.41
630-20-6	1,1,1,2-Tetrachloroethane	ND		3.0	0.59
79-34-5	1,1,2,2-Tetrachloroethane	ND		4.0	0.91
100-42-5	Styrene	ND		3.0	0.75

FORM I 8260C

mw 9-9-19

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87651-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070208 Lab Sample ID: 580-87651-2  
 Matrix: Solid Lab File ID: 072419\_0053.D  
 Analysis Method: 8260C Date Collected: 07/11/2019 15:10  
 Sample wt/vol: 5.821(g) Date Analyzed: 07/25/2019 07:53  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: DB-VRX ID: 0.25 (mm)  
 % Moisture: 14.7 Level: (low/med) Low  
 Analysis Batch No.: 306556 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-25-2	Bromoform	ND <i>W</i>		5.0	0.85
98-82-8	Isopropylbenzene	5.6		2.0	0.46
108-86-1	Bromobenzene	ND <i>W</i>		10	1.0
103-65-1	N-Propylbenzene	13		5.0	0.77
96-18-4	1,2,3-Trichloropropane	ND		5.0	1.0
95-49-8	2-Chlorotoluene	ND		5.0	0.94
106-43-4	4-Chlorotoluene	ND		5.0	1.0
98-06-6	t-Butylbenzene	ND		3.0	0.66
135-98-8	sec-Butylbenzene	ND		3.0	0.67
541-73-1	1,3-Dichlorobenzene	ND <i>W</i>		5.0	1.1
99-87-6	4-Isopropyltoluene	3.5		2.0	0.40
106-46-7	1,4-Dichlorobenzene	ND		5.0	0.99
104-51-8	n-Butylbenzene	ND		3.0	0.63
95-50-1	1,2-Dichlorobenzene	ND		10	1.3
96-12-8	1,2-Dibromo-3-Chloropropane	ND		10	1.6
120-82-1	1,2,4-Trichlorobenzene	ND		2.0	0.42
87-61-6	1,2,3-Trichlorobenzene	ND		3.0	0.60
87-68-3	Hexachlorobutadiene	ND <i>W</i>		3.0	0.60
91-20-3	Naphthalene	46		10	1.8
1634-04-4	Methyl tert-butyl ether	ND		2.0	0.30

CAS NO.	SURROGATE	%REC	Q	LIMITS
2037-26-5	Toluene-d8 (Surr)	102		80-120
460-00-4	4-Bromofluorobenzene (Surr)	101		80-120
1868-53-7	Dibromofluoromethane (Surr)	101		80-120
98-08-8	Trifluorotoluene (Surr)	94		80-120
17060-07-0	1,2-Dichloroethane-d4 (Surr)	114		80-121

*W 9-919*

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87651-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070208 Lab Sample ID: 580-87651-2  
 Matrix: Solid Lab File ID: G2519009.D  
 Analysis Method: 8260C Date Collected: 07/11/2019 15:10  
 Sample wt/vol: 12.136(g) Date Analyzed: 07/25/2019 20:21  
 Soil Aliquot Vol: 1.075 (mL) Dilution Factor: 1  
 Soil Extract Vol.: 10 (mL) GC Column: DB-VRX ID: 0.25 (mm)  
 % Moisture: 14.7 Level: (low/med) Medium  
 Analysis Batch No.: 306707 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
108-67-8	1,3,5-Trimethylbenzene	3100		46	8.6
95-47-6	o-Xylene	4200		68	15
179601-23-1	m-Xylene & p-Xylene	6600		230	17

CAS NO.	SURROGATE	%REC	Q	LIMITS
2037-26-5	Toluene-d8 (Surr)	106		80-120
460-00-4	4-Bromofluorobenzene (Surr)	105		80-120
1868-53-7	Dibromofluoromethane (Surr)	101		80-120
98-08-8	Trifluorotoluene (Surr)	109		80-120
17060-07-0	1,2-Dichloroethane-d4 (Surr)	99		80-121

*MW 9949*

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87651-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070208 DL Lab Sample ID: 580-87651-2 DL  
 Matrix: Solid Lab File ID: G2619010.D  
 Analysis Method: 8260C Date Collected: 07/11/2019 15:10  
 Sample wt/vol: 12.136(g) Date Analyzed: 07/26/2019 14:02  
 Soil Aliquot Vol: 100 (uL) Dilution Factor: 1  
 Soil Extract Vol.: 10 (mL) GC Column: DB-VRX ID: 0.25 (mm)  
 % Moisture: 14.7 Level: (low/med) Medium  
 Analysis Batch No.: 306783 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
95-63-6	1,2,4-Trimethylbenzene	8900	<i>HL</i>	490	170

CAS NO.	SURROGATE	%REC	Q	LIMITS
2037-26-5	Toluene-d8 (Surr)	106		80-120
460-00-4	4-Bromofluorobenzene (Surr)	103		80-120
1868-53-7	Dibromofluoromethane (Surr)	100		80-120
98-08-8	Trifluorotoluene (Surr)	108		80-120
17060-07-0	1,2-Dichloroethane-d4 (Surr)	98		80-121

*MW 9910*

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87651-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070209

Lab Sample ID: 580-87651-3

Matrix: Solid

Lab File ID: 072419\_0054.D

Analysis Method: 8260C

Date Collected: 07/11/2019 16:05

Sample wt/vol: 7.052(g)

Date Analyzed: 07/25/2019 08:17

Soil Aliquot Vol: \_\_\_\_\_

Dilution Factor: 1

Soil Extract Vol.: \_\_\_\_\_

GC Column: DB-VRX ID: 0.25 (mm)

% Moisture: 16.8

Level: (low/med) Low

Analysis Batch No.: 306556

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-71-8	Dichlorodifluoromethane	ND		1.7	0.42
74-87-3	Chloromethane	ND		4.3	0.79
75-01-4	Vinyl chloride	ND		1.7	0.26
74-83-9	Bromomethane	ND		0.85	0.18
75-00-3	Chloroethane	ND		8.5	1.4
75-69-4	Trichlorofluoromethane	ND		1.7	0.26
75-35-4	1,1-Dichloroethene	ND		4.3	0.94
75-09-2	Methylene Chloride	ND		34	8.4
156-60-5	trans-1,2-Dichloroethene	ND		1.7	0.34
75-34-3	1,1-Dichloroethane	ND		0.85	0.16
594-20-7	2,2-Dichloropropane	ND		4.3	0.77
156-59-2	cis-1,2-Dichloroethene	ND		2.6	0.51
74-97-5	Bromochloromethane	ND		1.7	0.21
67-66-3	Chloroform	ND		1.7	0.26
71-55-6	1,1,1-Trichloroethane	ND	*	1.7	0.26
56-23-5	Carbon tetrachloride	ND	*	1.7	0.26
563-58-6	1,1-Dichloropropene	ND	*W	1.7	0.26
71-43-2	Benzene	ND		1.7	0.33
107-06-2	1,2-Dichloroethane	ND		0.85	0.17
79-01-6	Trichloroethene	ND		1.7	0.26
78-87-5	1,2-Dichloropropane	ND		1.7	0.34
74-95-3	Dibromomethane	ND		0.85	0.14
75-27-4	Bromodichloromethane	ND		0.85	0.15
10061-01-5	cis-1,3-Dichloropropene	ND		0.85	0.17
108-88-3	Toluene	1.8	J Q	8.5	1.1
10061-02-6	trans-1,3-Dichloropropene	ND		8.5	1.2
79-00-5	1,1,2-Trichloroethane	ND		1.7	0.21
127-18-4	Tetrachloroethene	ND		1.7	0.34
142-28-9	1,3-Dichloropropane	ND		1.7	0.20
124-48-1	Dibromochloromethane	ND		1.3	0.23
106-93-4	1,2-Dibromoethane	ND		0.85	0.17
108-90-7	Chlorobenzene	ND		1.7	0.21
100-41-4	Ethylbenzene	ND		1.7	0.35
630-20-6	1,1,1,2-Tetrachloroethane	ND		2.6	0.50
79-34-5	1,1,2,2-Tetrachloroethane	ND		3.4	0.77
179601-23-1	m-Xylene & p-Xylene	2.2	J Q	8.5	1.4

*MW 9910*



FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87651-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070209 Lab Sample ID: 580-87651-3  
 Matrix: Solid Lab File ID: 072419\_0054.D  
 Analysis Method: 8260C Date Collected: 07/11/2019 16:05  
 Sample wt/vol: 7.052(g) Date Analyzed: 07/25/2019 08:17  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: DB-VRX ID: 0.25 (mm)  
 % Moisture: 16.8 Level: (low/med) Low  
 Analysis Batch No.: 306556 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
95-47-6	o-Xylene	1.1	J <i>Q</i>	4.3	0.78
100-42-5	Styrene	ND		2.6	0.63
75-25-2	Bromoform	ND		4.3	0.72
98-82-8	Isopropylbenzene	ND		1.7	0.39
108-86-1	Bromobenzene	ND		8.5	0.85
103-65-1	N-Propylbenzene	ND		4.3	0.65
96-18-4	1,2,3-Trichloropropane	ND		4.3	0.85
95-49-8	2-Chlorotoluene	ND		4.3	0.79
108-67-8	1,3,5-Trimethylbenzene	ND		4.3	0.69
106-43-4	4-Chlorotoluene	ND		4.3	0.85
98-06-6	t-Butylbenzene	ND		2.6	0.56
95-63-6	1,2,4-Trimethylbenzene	ND		4.3	1.0
135-98-8	sec-Butylbenzene	ND		2.6	0.57
541-73-1	1,3-Dichlorobenzene	ND		4.3	0.94
99-87-6	4-Isopropyltoluene	ND		1.7	0.34
106-46-7	1,4-Dichlorobenzene	ND		4.3	0.84
104-51-8	n-Butylbenzene	ND		2.6	0.54
95-50-1	1,2-Dichlorobenzene	ND		8.5	1.1
96-12-8	1,2-Dibromo-3-Chloropropane	ND		8.5	1.4
120-82-1	1,2,4-Trichlorobenzene	ND		1.7	0.36
87-61-6	1,2,3-Trichlorobenzene	ND		2.6	0.51
87-68-3	Hexachlorobutadiene	ND		2.6	0.51
91-20-3	Naphthalene	ND		8.5	1.5
1634-04-4	Methyl tert-butyl ether	ND		1.7	0.26

CAS NO.	SURROGATE	%REC	Q	LIMITS
2037-26-5	Toluene-d8 (Surr)	98		80-120
460-00-4	4-Bromofluorobenzene (Surr)	101		80-120
1868-53-7	Dibromofluoromethane (Surr)	96		80-120
98-08-8	Trifluorotoluene (Surr)	94		80-120
17060-07-0	1,2-Dichloroethane-d4 (Surr)	105		80-121

*mw 9/9/19*

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87651-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070605 Lab Sample ID: 580-87651-4  
 Matrix: Solid Lab File ID: 072419\_0055.D  
 Analysis Method: 8260C Date Collected: 07/12/2019 17:10  
 Sample wt/vol: 5(g) Date Analyzed: 07/25/2019 08:42  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: DB-VRX ID: 0.25 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 306556 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-71-8	Dichlorodifluoromethane	ND		2.0	0.49
74-87-3	Chloromethane	ND		5.0	0.93
75-01-4	Vinyl chloride	ND		2.0	0.30
74-83-9	Bromomethane	ND		1.0	0.21
75-00-3	Chloroethane	ND		10	1.6
75-69-4	Trichlorofluoromethane	ND		2.0	0.30
75-35-4	1,1-Dichloroethene	ND		5.0	1.1
75-09-2	Methylene Chloride	ND		40	9.9
156-60-5	trans-1,2-Dichloroethene	ND		2.0	0.40
75-34-3	1,1-Dichloroethane	ND		1.0	0.19
594-20-7	2,2-Dichloropropane	ND		5.0	0.90
156-59-2	cis-1,2-Dichloroethene	ND		3.0	0.60
74-97-5	Bromochloromethane	ND		2.0	0.25
67-66-3	Chloroform	0.45	J	2.0	0.30
71-55-6	1,1,1-Trichloroethane	ND		2.0	0.30
56-23-5	Carbon tetrachloride	ND		2.0	0.30
563-58-6	1,1-Dichloropropene	ND		2.0	0.30
71-43-2	Benzene	ND		2.0	0.39
107-06-2	1,2-Dichloroethane	ND		1.0	0.20
79-01-6	Trichloroethene	ND		2.0	0.30
78-87-5	1,2-Dichloropropane	ND		2.0	0.40
74-95-3	Dibromomethane	ND		1.0	0.17
75-27-4	Bromodichloromethane	ND		1.0	0.18
10061-01-5	cis-1,3-Dichloropropene	ND		1.0	0.20
108-88-3	Toluene	ND		10	1.3
10061-02-6	trans-1,3-Dichloropropene	ND		10	1.4
79-00-5	1,1,2-Trichloroethane	ND		2.0	0.25
127-18-4	Tetrachloroethene	ND		2.0	0.40
142-28-9	1,3-Dichloropropane	ND		2.0	0.23
124-48-1	Dibromochloromethane	ND		1.5	0.27
106-93-4	1,2-Dibromoethane	ND		1.0	0.20
108-90-7	Chlorobenzene	ND		2.0	0.25
100-41-4	Ethylbenzene	ND		2.0	0.41
630-20-6	1,1,1,2-Tetrachloroethane	ND		3.0	0.59
79-34-5	1,1,2,2-Tetrachloroethane	ND		4.0	0.90
179601-23-1	m-Xylene & p-Xylene	ND		10	1.7

*Handwritten signature and date: 9-9-19*

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87651-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070605 Lab Sample ID: 580-87651-4  
 Matrix: Solid Lab File ID: 072419\_0055.D  
 Analysis Method: 8260C Date Collected: 07/12/2019 17:10  
 Sample wt/vol: 5(g) Date Analyzed: 07/25/2019 08:42  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: DB-VRX ID: 0.25 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 306556 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
95-47-6	o-Xylene	ND		5.0	0.92
100-42-5	Styrene	ND		3.0	0.74
75-25-2	Bromoform	ND		5.0	0.84
98-82-8	Isopropylbenzene	ND		2.0	0.46
108-86-1	Bromobenzene	ND		10	1.0
103-65-1	N-Propylbenzene	ND		5.0	0.76
96-18-4	1,2,3-Trichloropropane	ND		5.0	1.0
95-49-8	2-Chlorotoluene	ND		5.0	0.93
108-67-8	1,3,5-Trimethylbenzene	ND		5.0	0.81
106-43-4	4-Chlorotoluene	ND		5.0	1.0
98-06-6	t-Butylbenzene	ND		3.0	0.66
95-63-6	1,2,4-Trimethylbenzene	ND		5.0	1.2
135-98-8	sec-Butylbenzene	ND		3.0	0.67
541-73-1	1,3-Dichlorobenzene	ND		5.0	1.1
99-87-6	4-Isopropyltoluene	ND		2.0	0.40
106-46-7	1,4-Dichlorobenzene	ND		5.0	0.98
104-51-8	n-Butylbenzene	ND		3.0	0.63
95-50-1	1,2-Dichlorobenzene	ND		10	1.3
96-12-8	1,2-Dibromo-3-Chloropropane	ND		10	1.6
120-82-1	1,2,4-Trichlorobenzene	ND		2.0	0.42
87-61-6	1,2,3-Trichlorobenzene	ND		3.0	0.60
87-68-3	Hexachlorobutadiene	ND		3.0	0.60
91-20-3	Naphthalene	ND		10	1.8
1634-04-4	Methyl tert-butyl ether	ND		2.0	0.30

CAS NO.	SURROGATE	%REC	Q	LIMITS
2037-26-5	Toluene-d8 (Surr)	105		80-120
460-00-4	4-Bromofluorobenzene (Surr)	97		80-120
1868-53-7	Dibromofluoromethane (Surr)	94		80-120
98-08-8	Trifluorotoluene (Surr)	93		80-120
17060-07-0	1,2-Dichloroethane-d4 (Surr)	94		80-121

*Mw 9/9/19*



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### MEMORANDUM

DATE: September 9, 2019

TO: Seth Wing, START-IV Project Manager, E & E, Seattle, WA

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington *MW*

SUBJ: **Organic Data Quality Assurance Review, May Creek Removal Action Site, Renton, Washington**

REF: TO: TO-68HE0718F0470 PAN: 1004530.9475.001.01

The data quality assurance review of 3 soil samples collected from the May Creek Removal Action site in Renton, Washington, has been completed. Semivolatile Organic Compound (SVOC) analysis (EPA Method 8270) was performed by Test America, Inc., Tacoma, Washington. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Manual Process (S2B/4VM).

The samples were numbered: 19070207 19070208 19070209

#### Data Qualifications:

1. **Sample Holding Times: Acceptable.**

The samples were maintained and received within the QC limits of 0°C to 6°C. The samples were collected on July 11, 2019, were extracted on July 23, 2019, and were analyzed by July 24, 2019, therefore meeting holding time criteria of less than 14 days between collection and extraction and less than 40 days between extraction and analysis.

2. **Tuning: Acceptable.**

Tuning was performed at the beginning of each 12-hour analysis sequence. All results were within QC limits.

3. **Initial Calibration: Satisfactory.**

All average Relative Response Factors (RRFs) were within the QC limits except n-nitroso-di-n-propylamine; associated sample quantitation limits were rejected (R). All Relative Standard Deviations (RSDs) were within the QC limits.

4. **Continuing Calibration: Satisfactory.**

All RRFs were within the QC limits except n-nitroso-di-n-propylamine; no additional actions were taken. All % differences were within the QC limits except bis(2-chloroethyl)ether, 4-nitrophenol, and 4-nitroaniline with low recoveries; associated sample results were qualified as estimated quantities (JL or UJL).

5. **Blanks: Acceptable.**

A method blank was analyzed for each 20 sample batch per matrix. There were no detections in any method blank.

**6. System Monitoring Compounds (SMCs): Satisfactory.**

All SMC recoveries were within QC limits except one low outlier in the method blank; no actions were taken as all other SMC results in the method blank were within QC limits.

**7. Blank Spike (BS) Analysis: Acceptable.**

BS analysis was performed per SDG or per matrix per concentration level, whichever was more frequent. All recoveries were within QC limits.

**8. Internal Standards: Acceptable.**

All internal standards (IS) were within  $\pm 30$  seconds of the continuing calibration IS retention times. All area counts were within 50 % to 200 % of the continuing calibration area counts.

**9. Overall Assessment of Data for Use**

A total of 201 results were validated in this data memorandum. No sample results were qualified as estimated quantities (J) based on duplicate precision outliers, spike accuracy outliers, holding time outliers, incorrect sample containers, or sample temperature outliers. The following analyte was detected in the method blank: di-n-butylphthalate. Three sample results were rejected (R).

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the analytical method(s), the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, and/or the Office of Emergency and Remedial Response Publication "National Functional Guidelines for Superfund Organic Methods Data Review, January 2017". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

H - The sample result is biased high.

J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

K - The bias of the sample is not known.

L - The sample result is biased low.

N - The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification".

NJ - The analyte has been "tentatively identified" or "presumptively" as present and the associated numerical value is the estimated concentration in the sample.

Q - Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.

- R - The data is rejected and unusable. The analyte may or may not be present in the sample.
- U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.

FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87651-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070207

Lab Sample ID: 580-87651-1

Matrix: Solid

Lab File ID: 0724B013.D

Analysis Method: 8270D

Date Collected: 07/11/2019 15:00

Extract. Method: 3550B

Date Extracted: 07/23/2019 09:40

Sample wt/vol: 10.689(g)

Date Analyzed: 07/24/2019 18:27

Con. Extract Vol.: 10(mL)

Dilution Factor: 10

Injection Volume: 1(uL)

Level: (low/med) Low

% Moisture: 14.6

GPC Cleanup: (Y/N) N

Analysis Batch No.: 306480

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
108-95-2	Phenol	ND		1600	250
111-44-4	Bis(2-chloroethyl)ether	ND		1100	84
95-57-8	2-Chlorophenol	ND		2200	140
541-73-1	1,3-Dichlorobenzene	ND		550	53
106-46-7	1,4-Dichlorobenzene	ND		550	91
100-51-6	Benzyl alcohol	ND		5500	840
95-50-1	1,2-Dichlorobenzene	ND		550	130
95-48-7	2-Methylphenol	ND		1600	110
15831-10-4	3 & 4 Methylphenol	ND		2200	160
621-64-7	N-Nitrosodi-n-propylamine	ND		2200	240
67-72-1	Hexachloroethane	ND		1600	96
98-95-3	Nitrobenzene	ND		2200	220
78-59-1	Isophorone	ND		1600	81
88-75-5	2-Nitrophenol	ND		2200	230
105-67-9	2,4-Dimethylphenol	ND		1100	160
65-85-0	Benzoic acid	ND		22000	6300
111-91-1	Bis(2-chloroethoxy)methane	ND		2200	200
120-83-2	2,4-Dichlorophenol	ND		1100	160
120-82-1	1,2,4-Trichlorobenzene	ND		550	66
91-20-3	Naphthalene	1400		270	55
106-47-8	4-Chloroaniline	ND		16000	4400
87-68-3	Hexachlorobutadiene	ND		550	160
59-50-7	4-Chloro-3-methylphenol	ND		1600	360
91-57-6	2-Methylnaphthalene	2200		550	96
77-47-4	Hexachlorocyclopentadiene	ND		1100	220
88-06-2	2,4,6-Trichlorophenol	ND		1600	390
95-95-4	2,4,5-Trichlorophenol	ND		2200	490
91-58-7	2-Chloronaphthalene	ND		270	55
88-74-4	2-Nitroaniline	ND		1100	160
131-11-3	Dimethyl phthalate	ND		1600	140
208-96-8	Acenaphthylene	ND		270	55
606-20-2	2,6-Dinitrotoluene	ND		1600	370
99-09-2	3-Nitroaniline	ND		2200	440
83-32-9	Acenaphthene	ND		270	55

FORM I 8270D

*MW 99-19*



FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87651-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070207 Lab Sample ID: 580-87651-1  
 Matrix: Solid Lab File ID: 0724B013.D  
 Analysis Method: 8270D Date Collected: 07/11/2019 15:00  
 Extract. Method: 3550B Date Extracted: 07/23/2019 09:40  
 Sample wt/vol: 10.689(g) Date Analyzed: 07/24/2019 18:27  
 Con. Extract Vol.: 10(mL) Dilution Factor: 10  
 Injection Volume: 1(uL) Level: (low/med) Low  
 % Moisture: 14.6 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 306480 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
51-28-5	2,4-Dinitrophenol	ND		11000	2200
100-02-7	4-Nitrophenol	ND		16000	4000
132-64-9	Dibenzofuran	ND		1600	65
121-14-2	2,4-Dinitrotoluene	ND		2200	470
84-66-2	Diethyl phthalate	ND		16000	830
7005-72-3	4-Chlorophenyl phenyl ether	ND		2200	69
86-73-7	Fluorene	ND		270	55
100-01-6	4-Nitroaniline	ND		1600	550
534-52-1	4,6-Dinitro-2-methylphenol	ND		11000	1100
86-30-6	N-Nitrosodiphenylamine	ND		660	88
101-55-3	4-Bromophenyl phenyl ether	ND		2200	100
118-74-1	Hexachlorobenzene	ND		550	160
87-86-5	Pentachlorophenol	ND		4900	1400
85-01-8	Phenanthrene	400	J Q	660	130
120-12-7	Anthracene	97	J Q	270	55
84-74-2	Di-n-butyl phthalate	ND		5500	620
206-44-0	Fluoranthene	760		270	55
129-00-0	Pyrene	690		660	70
85-68-7	Butyl benzyl phthalate	1000	J Q	2200	560
91-94-1	3,3'-Dichlorobenzidine	ND		4400	1100
56-55-3	Benzo[a]anthracene	240	J Q	270	55
218-01-9	Chrysene	430	J Q	660	140
117-81-7	Bis(2-ethylhexyl) phthalate	1500	J	6600	780
117-84-0	Di-n-octyl phthalate	1100	J	1600	620
50-32-8	Benzo[a]pyrene	260	J	660	140
193-39-5	Indeno[1,2,3-cd]pyrene	270	J	440	55
53-70-3	Dibenz(a,h)anthracene	ND		550	130
191-24-2	Benzo[g,h,i]perylene	230	J Q	660	99
86-74-8	Carbazole	ND		1600	90
90-12-0	1-Methylnaphthalene	2000		330	55
205-99-2	Benzo[b]fluoranthene	290		270	55
207-08-9	Benzo[k]fluoranthene	ND		660	150
108-60-1	bis(chloroisopropyl) ether	ND		2200	150



FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87651-1  
SDG No.: \_\_\_\_\_  
Client Sample ID: 19070207 Lab Sample ID: 580-87651-1  
Matrix: Solid Lab File ID: 0724B013.D  
Analysis Method: 8270D Date Collected: 07/11/2019 15:00  
Extract. Method: 3550B Date Extracted: 07/23/2019 09:40  
Sample wt/vol: 10.689(g) Date Analyzed: 07/24/2019 18:27  
Con. Extract Vol.: 10(mL) Dilution Factor: 10  
Injection Volume: 1(uL) Level: (low/med) Low  
% Moisture: 14.6 GPC Cleanup: (Y/N) N  
Analysis Batch No.: 306480 Units: ug/Kg

CAS NO.	SURROGATE	%REC	Q	LIMITS
367-12-4	2-Fluorophenol (Surr)	86		60-125
4165-62-2	Phenol-d5 (Surr)	89		59-120
4165-60-0	Nitrobenzene-d5 (Surr)	103		62-120
321-60-8	2-Fluorobiphenyl	89		57-120
118-79-6	2,4,6-Tribromophenol (Surr)	119		52-125
1718-51-0	Terphenyl-d14 (Surr)	109		58-120

*mm* 9919

FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87651-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070208

Lab Sample ID: 580-87651-2

Matrix: Solid

Lab File ID: 0724B014.D

Analysis Method: 8270D

Date Collected: 07/11/2019 15:10

Extract. Method: 3550B

Date Extracted: 07/23/2019 09:40

Sample wt/vol: 10.806(g)

Date Analyzed: 07/24/2019 18:51

Con. Extract Vol.: 10(mL)

Dilution Factor: 5

Injection Volume: 1(uL)

Level: (low/med) Low

% Moisture: 14.7

GPC Cleanup: (Y/N) N

Analysis Batch No.: 306480

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
108-95-2	Phenol	ND		810	120
111-44-4	Bis(2-chloroethyl)ether	ND		540	42
95-57-8	2-Chlorophenol	ND		1100	71
541-73-1	1,3-Dichlorobenzene	ND		270	26
106-46-7	1,4-Dichlorobenzene	ND		270	45
100-51-6	Benzyl alcohol	ND		2700	420
95-50-1	1,2-Dichlorobenzene	ND		270	65
95-48-7	2-Methylphenol	ND		810	53
15831-10-4	3 & 4 Methylphenol	ND		1100	81
621-64-7	N-Nitrosodi-n-propylamine	ND		1100	120
67-72-1	Hexachloroethane	ND		810	48
98-95-3	Nitrobenzene	ND		1100	110
78-59-1	Isophorone	ND		810	40
88-75-5	2-Nitrophenol	ND		1100	110
105-67-9	2,4-Dimethylphenol	ND		540	81
65-85-0	Benzoic acid	ND		11000	3100
111-91-1	Bis(2-chloroethoxy)methane	ND		1100	98
120-83-2	2,4-Dichlorophenol	ND		540	81
120-82-1	1,2,4-Trichlorobenzene	ND		270	33
91-20-3	Naphthalene	340		140	27
106-47-8	4-Chloroaniline	ND		8100	2200
87-68-3	Hexachlorobutadiene	ND		270	81
59-50-7	4-Chloro-3-methylphenol	ND		810	180
91-57-6	2-Methylnaphthalene	540		270	48
77-47-4	Hexachlorocyclopentadiene	ND		540	110
88-06-2	2,4,6-Trichlorophenol	ND		810	200
95-95-4	2,4,5-Trichlorophenol	ND		1100	240
91-58-7	2-Chloronaphthalene	ND		140	27
88-74-4	2-Nitroaniline	ND		540	81
131-11-3	Dimethyl phthalate	ND		810	71
208-96-8	Acenaphthylene	31	J Q	140	27
606-20-2	2,6-Dinitrotoluene	ND		810	180
99-09-2	3-Nitroaniline	ND		1100	220
83-32-9	Acenaphthene	ND		140	27

*MW 9/9/19*

FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87651-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070208

Lab Sample ID: 580-87651-2

Matrix: Solid

Lab File ID: 0724B014.D

Analysis Method: 8270D

Date Collected: 07/11/2019 15:10

Extract. Method: 3550B

Date Extracted: 07/23/2019 09:40

Sample wt/vol: 10.806(g)

Date Analyzed: 07/24/2019 18:51

Con. Extract Vol.: 10(mL)

Dilution Factor: 5

Injection Volume: 1(uL)

Level: (low/med) Low

% Moisture: 14.7

GPC Cleanup: (Y/N) N

Analysis Batch No.: 306480

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
51-28-5	2,4-Dinitrophenol	ND		5400	1100
100-02-7	4-Nitrophenol	ND		8100	2000
132-64-9	Dibenzofuran	ND		810	32
121-14-2	2,4-Dinitrotoluene	ND		1100	230
84-66-2	Diethyl phthalate	ND		8100	410
7005-72-3	4-Chlorophenyl phenyl ether	ND		1100	34
86-73-7	Fluorene	ND		140	27
100-01-6	4-Nitroaniline	ND		810	270
534-52-1	4,6-Dinitro-2-methylphenol	ND		5400	540
86-30-6	N-Nitrosodiphenylamine	ND		330	43
101-55-3	4-Bromophenyl phenyl ether	ND		1100	49
118-74-1	Hexachlorobenzene	ND		270	81
87-86-5	Pentachlorophenol	ND		2400	720
85-01-8	Phenanthrene	270	J Q	330	65
120-12-7	Anthracene	ND		140	27
84-74-2	Di-n-butyl phthalate	ND		2700	310
206-44-0	Fluoranthene	340		140	27
129-00-0	Pyrene	410		330	35
85-68-7	Butyl benzyl phthalate	430	J Q	1100	280
91-94-1	3,3'-Dichlorobenzidine	ND		2200	540
56-55-3	Benzo[a]anthracene	85	J Q	140	27
218-01-9	Chrysene	220	J	330	71
117-81-7	Bis(2-ethylhexyl) phthalate	510	J	3300	390
117-84-0	Di-n-octyl phthalate	430	J	810	310
50-32-8	Benzo[a]pyrene	110	J	330	71
193-39-5	Indeno[1,2,3-cd]pyrene	170	J	220	27
53-70-3	Dibenz(a,h)anthracene	ND		270	65
191-24-2	Benzo[g,h,i]perylene	110	J Q	330	49
86-74-8	Carbazole	ND		810	44
90-12-0	1-Methylnaphthalene	400		160	27
205-99-2	Benzo[b]fluoranthene	170		140	27
207-08-9	Benzo[k]fluoranthene	ND		330	76
108-60-1	bis(chloroisopropyl) ether	ND		1100	76

FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87651-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070208 Lab Sample ID: 580-87651-2  
 Matrix: Solid Lab File ID: 0724B014.D  
 Analysis Method: 8270D Date Collected: 07/11/2019 15:10  
 Extract. Method: 3550B Date Extracted: 07/23/2019 09:40  
 Sample wt/vol: 10.806(g) Date Analyzed: 07/24/2019 18:51  
 Con. Extract Vol.: 10(mL) Dilution Factor: 5  
 Injection Volume: 1(uL) Level: (low/med) Low  
 % Moisture: 14.7 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 306480 Units: ug/Kg

CAS NO.	SURROGATE	%REC	Q	LIMITS
367-12-4	2-Fluorophenol (Surr)	81		60-125
4165-62-2	Phenol-d5 (Surr)	77		59-120
4165-60-0	Nitrobenzene-d5 (Surr)	86		62-120
321-60-8	2-Fluorobiphenyl	83		57-120
118-79-6	2,4,6-Tribromophenol (Surr)	105		52-125
1718-51-0	Terphenyl-d14 (Surr)	116		58-120

*MW 9419*

FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87651-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070209 Lab Sample ID: 580-87651-3  
 Matrix: Solid Lab File ID: 0724B015.D  
 Analysis Method: 8270D Date Collected: 07/11/2019 16:05  
 Extract. Method: 3550B Date Extracted: 07/23/2019 09:40  
 Sample wt/vol: 11.670 (g) Date Analyzed: 07/24/2019 19:15  
 Con. Extract Vol.: 10 (mL) Dilution Factor: 1  
 Injection Volume: 1 (uL) Level: (low/med) Low  
 % Moisture: 16.8 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 306480 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
108-95-2	Phenol	ND		150	24
111-44-4	Bis(2-chloroethyl)ether	ND		100	7.9
95-57-8	2-Chlorophenol	ND		210	13
541-73-1	1,3-Dichlorobenzene	ND		52	4.9
106-46-7	1,4-Dichlorobenzene	ND		52	8.6
100-51-6	Benzyl alcohol	ND		520	79
95-50-1	1,2-Dichlorobenzene	ND		52	12
95-48-7	2-Methylphenol	ND		150	10
15831-10-4	3 & 4 Methylphenol	ND		210	15
621-64-7	N-Nitrosodi-n-propylamine	ND		210	23
67-72-1	Hexachloroethane	ND		150	9.1
98-95-3	Nitrobenzene	ND		210	21
78-59-1	Isophorone	ND		150	7.6
88-75-5	2-Nitrophenol	ND		210	22
105-67-9	2,4-Dimethylphenol	ND		100	15
65-85-0	Benzoic acid	ND		2100	600
111-91-1	Bis(2-chloroethoxy)methane	ND		210	19
120-83-2	2,4-Dichlorophenol	ND		100	15
120-82-1	1,2,4-Trichlorobenzene	ND		52	6.2
91-20-3	Naphthalene	ND		26	5.2
106-47-8	4-Chloroaniline	ND		1500	410
87-68-3	Hexachlorobutadiene	ND		52	15
59-50-7	4-Chloro-3-methylphenol	ND		150	34
91-57-6	2-Methylnaphthalene	ND		52	9.1
77-47-4	Hexachlorocyclopentadiene	ND		100	21
88-06-2	2,4,6-Trichlorophenol	ND		150	37
95-95-4	2,4,5-Trichlorophenol	ND		210	46
91-58-7	2-Chloronaphthalene	ND		26	5.2
88-74-4	2-Nitroaniline	ND		100	15
131-11-3	Dimethyl phthalate	ND		150	13
208-96-8	Acenaphthylene	ND		26	5.2
606-20-2	2,6-Dinitrotoluene	ND		150	35
99-09-2	3-Nitroaniline	ND		210	41
83-32-9	Acenaphthene	ND		26	5.2

FORM I 8270D

*mw 9/9/19*

FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87651-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070209 Lab Sample ID: 580-87651-3  
 Matrix: Solid Lab File ID: 0724B015.D  
 Analysis Method: 8270D Date Collected: 07/11/2019 16:05  
 Extract. Method: 3550B Date Extracted: 07/23/2019 09:40  
 Sample wt/vol: 11.670(g) Date Analyzed: 07/24/2019 19:15  
 Con. Extract Vol.: 10(mL) Dilution Factor: 1  
 Injection Volume: 1(uL) Level: (low/med) Low  
 % Moisture: 16.8 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 306480 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
51-28-5	2,4-Dinitrophenol	ND		1000	210
100-02-7	4-Nitrophenol	ND		1500	380
132-64-9	Dibenzofuran	ND		150	6.1
121-14-2	2,4-Dinitrotoluene	ND		210	44
84-66-2	Diethyl phthalate	ND		1500	78
7005-72-3	4-Chlorophenyl phenyl ether	ND		210	6.5
86-73-7	Fluorene	ND		26	5.2
100-01-6	4-Nitroaniline	ND		150	52
534-52-1	4,6-Dinitro-2-methylphenol	ND		1000	100
86-30-6	N-Nitrosodiphenylamine	ND		62	8.2
101-55-3	4-Bromophenyl phenyl ether	ND		210	9.4
118-74-1	Hexachlorobenzene	ND		52	15
87-86-5	Pentachlorophenol	ND		460	140
85-01-8	Phenanthrene	ND		62	12
120-12-7	Anthracene	ND		26	5.2
84-74-2	Di-n-butyl phthalate	ND		520	59
206-44-0	Fluoranthene	ND		26	5.2
129-00-0	Pyrene	ND		62	6.6
85-68-7	Butyl benzyl phthalate	ND		210	53
91-94-1	3,3'-Dichlorobenzidine	ND		410	100
56-55-3	Benzo[a]anthracene	ND		26	5.2
218-01-9	Chrysene	ND		62	13
117-81-7	Bis(2-ethylhexyl) phthalate	ND		620	73
117-84-0	Di-n-octyl phthalate	ND		150	59
50-32-8	Benzo[a]pyrene	ND		62	13
193-39-5	Indeno[1,2,3-cd]pyrene	ND		41	5.2
53-70-3	Dibenz(a,h)anthracene	ND		52	12
191-24-2	Benzo[g,h,i]perylene	ND		62	9.3
86-74-8	Carbazole	ND		150	8.5
90-12-0	1-Methylnaphthalene	ND		31	5.2
205-99-2	Benzo[b]fluoranthene	ND		26	5.2
207-08-9	Benzo[k]fluoranthene	ND		62	14
108-60-1	bis(chloroisopropyl) ether	ND		210	14

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FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87651-1  
SDG No.: \_\_\_\_\_  
Client Sample ID: 19070209 Lab Sample ID: 580-87651-3  
Matrix: Solid Lab File ID: 0724B015.D  
Analysis Method: 8270D Date Collected: 07/11/2019 16:05  
Extract. Method: 3550B Date Extracted: 07/23/2019 09:40  
Sample wt/vol: 11.670(g) Date Analyzed: 07/24/2019 19:15  
Con. Extract Vol.: 10(mL) Dilution Factor: 1  
Injection Volume: 1(uL) Level: (low/med) Low  
% Moisture: 16.8 GPC Cleanup: (Y/N) N  
Analysis Batch No.: 306480 Units: ug/Kg

CAS NO.	SURROGATE	%REC	Q	LIMITS
367-12-4	2-Fluorophenol (Surr)	83		60-125
4165-62-2	Phenol-d5 (Surr)	78		59-120
4165-60-0	Nitrobenzene-d5 (Surr)	80		62-120
321-60-8	2-Fluorobiphenyl	85		57-120
118-79-6	2,4,6-Tribromophenol (Surr)	83		52-125
1718-51-0	Terphenyl-d14 (Surr)	110		58-120

*mw 9949*



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### MEMORANDUM

DATE: September 9, 2019

TO: Seth Wing, START-IV Project Manager, E & E, Seattle, Washington

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington 

SUBJ: **Organic Data Quality Assurance Review, May Creek Removal Action Site, Renton, Washington**

REF: TO: TO-68HE0718F0470 PAN: 1004530.0470.001.01

The data quality assurance review of 4 soil samples collected from the May Creek Removal Action site located in Renton, Washington, has been completed. Analysis for Extended Gasoline Range Total Petroleum Hydrocarbons (Ecology Method NWTPH-Gx) analyses was performed by Test America, Inc., Tacoma, Washington. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Manual Process (S2B/4VM).

The samples were numbered: 19070207 19070208 19070209 19070605

#### Data Qualifications:

##### **1. Sample Holding Times: Satisfactory.**

The samples were maintained and received within the QC limits of  $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ . The samples were collected on July 11 and 12, 2019, were received at the laboratory within 48 hours of collection, and were analyzed by August 1, 2019, therefore meeting QC criteria of less than 14 days between collection and analysis for soil samples except sample 19070605; associated positive results and sample quantitation limits were qualified as estimated quantities with a low bias (JL or UJL).

##### **2. Initial Calibration: Acceptable.**

Calculations were verified as correct. All relative percent differences (RPDs) were less than or equal to the laboratory control limits.

##### **3. Continuing Calibration: Acceptable.**

Calculations were verified as correct. All percent differences were less than or equal to the laboratory control limits.

##### **4. Blanks: Satisfactory.**

A method blank was analyzed at the required frequency of every 12 hours for each matrix, preparation technique, and analysis system. Gasoline-range TPHs were not detected in the method blank except at 2.42 mg/kg (no actions were taken as the associated sample results were either greater than the



reporting limit or non-detects) or in the trip blank.

**5. System Monitoring Compounds (SMC): Acceptable.**

All recoveries of the SMCs were greater than 10% and within QC limits.

**6. Blank Spike (BS) Analysis: Acceptable.**

BS results were within laboratory QC limits.

**7. Quantitation and Quantitation Limits: Acceptable.**

Sample quantitation and sample quantitation limits were correctly calculated.

**8. Laboratory Contact: Not Required.**

No laboratory contact was required.

**11. Overall Assessment of Data for Use**

A total of 4 results were validated in this data memorandum. No sample results were qualified as estimated quantities (J) based on duplicate precision outliers, spike accuracy outliers, incorrect sample containers, or sample temperature outliers. One sample result was qualified as an estimated quantity (J) based on holding time outliers. No sample results were rejected (R).

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the analytical method(s), the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, and/or the Office of Emergency and Remedial Response Publication "National Functional Guidelines for Superfund Organic Methods Data Review, January 2017". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

H - The sample result is biased high.

J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

K - The bias of the sample is not known.

L - The sample result is biased low.

Q - Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.

R - The data is rejected and unusable. The analyte may or may not be present in the sample.

U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.

UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.

FORM I  
GC VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87651-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070207 Lab Sample ID: 580-87651-1  
 Matrix: Solid Lab File ID: 07171940.D  
 Analysis Method: NWTPH-Gx Date Collected: 07/11/2019 15:00  
 Sample wt/vol: 12.722(g) Date Analyzed: 07/18/2019 04:47  
 Soil Aliquot Vol: 0.2 (mL) Dilution Factor: 1  
 Soil Extract Vol.: 10 (mL) GC Column: RTX-VRX ID: 0.45 (mm)  
 % Moisture: 14.6 Level: (low/med) Medium  
 Analysis Batch No.: 305951 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00228	Gasoline	190		29	13

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	103		50-150

*mw 9-9-19*

FORM I  
GC VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87651-1  
SDG No.: \_\_\_\_\_  
Client Sample ID: 19070208 Lab Sample ID: 580-87651-2  
Matrix: Solid Lab File ID: 07171941.D  
Analysis Method: NWTPH-Gx Date Collected: 07/11/2019 15:10  
Sample wt/vol: 12.136(g) Date Analyzed: 07/18/2019 05:17  
Soil Aliquot Vol: 0.2 (mL) Dilution Factor: 1  
Soil Extract Vol.: 10 (mL) GC Column: RTX-VRX ID: 0.45 (mm)  
% Moisture: 14.7 Level: (low/med) Medium  
Analysis Batch No.: 305951 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00228	Gasoline	710		31	14

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	115		50-150

*MW 9/9/19*

FORM I  
GC VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87651-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070209 RA Lab Sample ID: 580-87651-3 RA  
 Matrix: Solid Lab File ID: 07191921.D  
 Analysis Method: NWTPH-Gx Date Collected: 07/11/2019 16:05  
 Sample wt/vol: 14.612(g) Date Analyzed: 07/19/2019 19:34  
 Soil Aliquot Vol: 1.075 (mL) Dilution Factor: 1  
 Soil Extract Vol.: 10 (mL) GC Column: RTX-VRX ID: 0.45 (mm)  
 % Moisture: 16.8 Level: (low/med) Medium  
 Analysis Batch No.: 306112 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00228	Gasoline	ND <i>mm</i>		5.1 <i>U</i>	2.4

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	98		50-150

*mm 9919*

FORM I  
GC VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87651-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070605 Lab Sample ID: 580-87651-4  
 Matrix: Solid Lab File ID: 07311932.D  
 Analysis Method: NWTPH-Gx Date Collected: 07/12/2019 17:10  
 Sample wt/vol: 10(g) Date Analyzed: 08/01/2019 01:01  
 Soil Aliquot Vol: 1.075 (mL) Dilution Factor: 1  
 Soil Extract Vol.: 10 (mL) GC Column: RTX-VRX ID: 0.45 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Medium  
 Analysis Batch No.: 307211 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00228	Gasoline	<del>ND</del> <i>HW</i>		5.0 <i>OTL</i>	2.3

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	103		50-150

*HW 9919*



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### MEMORANDUM

DATE: September 9, 2019

TO: Seth Wing, START-IV Project Manager, E & E, Seattle, WA

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington 

SUBJ: Organic Data Quality Assurance Review, May Creek Removal Action Site,  
Renton, Washington

REF: TO: 10-68HL0718F0470 PAN: 1004530.0470.001.01

The data quality assurance review of 3 soil samples collected from the May Creek Removal Action site located in Renton, Washington, has been completed. Analyses for Chlorinated Pesticides (EPA Method 8081) and Polychlorinated Biphenyls (PCBs - EPA Method 8082) were performed by Test America, Inc., Tacoma, Washington. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Manual Process (S2B/4VM).

The samples were numbered: 19070207 19070208 19070209

#### Data Qualifications:

**1. Sample Holding Times: Satisfactory.**

The samples were maintained at 0°C to 6°C. The samples were collected on July 11, 2019, extracted by August 26, 2019, and were analyzed by August 30, 2019, therefore exceeding pesticide QC criteria (in some cases) of less than 14 days between collection and soil sample extraction and less than 40 days between extraction and analysis; associated positive results and sample quantitation limits were qualified as estimated quantities with a low bias (JL or UJL). There are no holding time limits for Method 8082 PCBs.

**2. Instrument Performance: Acceptable.**

The surrogate retention time percent difference between the initial calibration standards and the remaining standards and samples was  $\leq 0.3\%$ .

**3. Initial and Continuing Calibration: Satisfactory.**

All initial calibration relative standard deviations (RSDs) were within QC limits. All continuing calibration % differences (% D) were within QC limits except some high results (no actions were taken based on these outliers as these analytes were not detected in the sample) and some low results on one column (no actions were taken based on these outliers as these analytes were not detected and results on the other column were acceptable).

**4. Blanks: Satisfactory.**

A method blank was prepared at the required frequency of every time samples were extracted for each matrix and for each concentration level, or every 20 samples, whichever is greater, and for each analytical system. No target analytes were detected in the laboratory blanks except Endosulfan I; no actions were taken as this analyte was not detected in any samples.

**5. System Monitoring Compounds (SMCs): Satisfactory.**

All recoveries of the SMCs were within QC limits except several outliers due to matrix interferences and high recoveries in the calibration blank; no actions were taken based on these outliers.

**6. Blank Spike (BS) Analyses: Acceptable.**

BS recoveries were within QC limits.

**7. Matrix Spike (MS) and MS Duplicate (MSD) Analyses: Satisfactory.**

MS and MSD recoveries were within QC limits except several pesticide outliers; no actions were taken based on these outliers.

**8. Duplicates: Satisfactory.**

Relative Percent Differences (RPDs) of all spiked analytes were within the required control limits except PCB-1016 and several Pesticide outliers; no actions were taken based on duplicate outliers alone.

**9. Compound Identification: Satisfactory.**

All positive sample results were dual-column confirmed with differences between the columns less than 40% (the lower values were reported) except 4,4'-DDT and dieldrin in sample 19070207, dieldrin in sample 19070208, and trans-chlordane and 4,4'-DDT in sample 19070208DL; associated positive results were qualified as estimated quantities with an unknown bias (JK).

**10. Target Compound Quantitation and Quantitation Limits: Acceptable.**

Sample results and quantitation limits were correctly calculated.

**11. Laboratory Contact**

No laboratory contact was required.

**12. Overall Assessment**

Internal standard outliers were reported from the column with acceptable results.

A total of 84 results were validated in this data memorandum. No sample results were qualified as estimated quantities (J) based on duplicate precision outliers, incorrect sample containers, or sample temperature outliers. No sample results were rejected (R). A total of 22 sample results were qualified as estimated quantities (UJ) based on holding time outliers.

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result. This updated memorandum provides additional results that weren't provided in the original submittal.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the analytical method(s), the EPA Region 10



Emergency Management Program SOG 144E Analytical Data Validation, and/or the Office of Emergency and Remedial Response Publication "National Functional Guidelines for Superfund Organic Methods Data Review, January 2017". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

#### Data Qualifiers and Definitions

- H - The sample result is biased high.
- J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
- K - The bias of the sample is not known.
- L - The sample result is biased low.
- Q - Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.
- R - The data is rejected and unusable. The analyte may or may not be present in the sample.
- U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.

FORM I  
PESTICIDES ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87651-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070207

Lab Sample ID: 580-87651-1

Matrix: Solid

Lab File ID: 45G080619a024.D

Analysis Method: 8081B

Date Collected: 07/11/2019 15:00

Extraction Method: 3546

Date Extracted: 07/24/2019 10:07

Sample wt/vol: 10.009(g)

Date Analyzed: 08/06/2019 13:46

Con. Extract Vol.: 10 (mL)

Dilution Factor: 3

Injection Volume: 1(uL)

GC Column: ZB-CLPest-1 ID: 0.25 (mm)

% Moisture: 14.6

GPC Cleanup: (Y/N) N

Analysis Batch No.: 307557

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
309-00-2	Aldrin	ND		11	1.3
319-84-6	alpha-BHC	ND		7.0	0.56
319-85-7	beta-BHC	ND	E2	18	0.88
319-86-8	delta-BHC	ND		11	0.98
58-89-9	gamma-BHC (Lindane)	ND		7.0	2.6
72-54-8	4,4'-DDD	16	F1	7.0	0.81
72-55-9	4,4'-DDE	2.6	J P	7.0	1.3
50-29-3	4,4'-DDT	8.3	F1	7.0	1.3
60-57-1	Dieldrin	2.6	J P	7.0	1.2
959-98-8	Endosulfan I	ND		7.0	1.2
33213-65-9	Endosulfan II	ND		7.0	0.91
1031-07-8	Endosulfan sulfate	ND	F2	7.0	0.98
72-20-8	Endrin	ND		7.0	1.6
7421-93-4	Endrin aldehyde	ND	F1	7.0	17
76-44-8	Heptachlor	ND	F2	11	0.67
1024-57-3	Heptachlor epoxide	ND		11	1.1
72-43-5	Methoxychlor	ND	F1 F2	35	1.3
53494-70-5	Endrin ketone	ND		7.0	1.5
8001-35-2	Toxaphene	ND		350	88
5103-71-9	cis-Chlordane	ND		7.0	2.6
5103-74-2	trans-Chlordane	2.3	J Q	11	1.1

CAS NO.	SURROGATE	%REC	Q	LIMITS
877-09-8	Tetrachloro-m-xylene	62		50-123
2051-24-3	DCB Decachlorobiphenyl	111		36-136

*mw 9-9-19*

FORM I  
PESTICIDES ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87651-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070208 Lab Sample ID: 580-87651-2  
 Matrix: Solid Lab File ID: 45H082019a015.D  
 Analysis Method: 8081B Date Collected: 07/11/2019 15:10  
 Extraction Method: 3546 Date Extracted: 08/16/2019 10:52  
 Sample wt/vol: 10.283(g) Date Analyzed: 08/20/2019 20:22  
 Con. Extract Vol.: 10(mL) Dilution Factor: 1  
 Injection Volume: 1(uL) GC Column: ZB-CLPest-1 ID: 0.25(mm)  
 % Moisture: 14.7 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 308892 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
1031-07-8	Endosulfan sulfate	ND	H	2.3	0.32
7421-93-4	Endrin aldehyde	ND	H	23	5.5
72-43-5	Methoxychlor	ND	H	11	0.42
53494-70-5	Endrin ketone	ND	H	2.3	0.48

CAS NO.	SURROGATE	%REC	Q	LIMITS
877-09-8	Tetrachloro-m-xylene	36	X	50-123
2051-24-3	DCB Decachlorobiphenyl	49		36-136

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FORM I  
PESTICIDES ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87651-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070208 RA

Lab Sample ID: 580-87651-2 RA

Matrix: Solid

Lab File ID: 45H082119b013.D

Analysis Method: 8081B

Date Collected: 07/11/2019 15:10

Extraction Method: 3546

Date Extracted: 08/16/2019 10:52

Sample wt/vol: 10.283(g)

Date Analyzed: 08/21/2019 19:09

Con. Extract Vol.: 10(mL)

Dilution Factor: 1

Injection Volume: 1(uL)

GC Column: ZB-CLPest-1 ID: 0.25 (mm)

% Moisture: 14.7

GPC Cleanup: (Y/N) N

Analysis Batch No.: 309003

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
309-00-2	Aldrin	ND	H	3.4	0.43
319-84-6	alpha-BHC	0.79	J H	2.3	0.18
319-85-7	beta-BHC	ND	H	5.7	0.28
319-86-8	delta-BHC	ND	H	3.4	0.32
58-89-9	gamma-BHC (Lindane)	ND	H	2.3	0.85
72-54-8	4,4'-DDD	77	H	2.3	0.26
72-55-9	4,4'-DDE	160	H	2.3	0.42
60-57-1	Dieldrin	ND	H	2.3	0.40
959-98-8	Endosulfan I	ND	H	2.3	0.39
33213-65-9	Endosulfan II	ND	H	2.3	0.30
72-20-8	Endrin	ND	H	2.3	0.54
76-44-8	Heptachlor	ND	H	3.4	0.22
1024-57-3	Heptachlor epoxide	ND	H	3.4	0.34
5103-71-9	cis-Chlordane	ND	H	2.3	0.85
5103-74-2	trans-Chlordane	ND	H	3.4	0.36

CAS NO.	SURROGATE	%REC	Q	LIMITS
877-09-8	Tetrachloro-m-xylene	60		50-123
2051-24-3	DCB Decachlorobiphenyl	176		36-136

FORM I  
PESTICIDES ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87651-1  
SDG No.: \_\_\_\_\_  
Client Sample ID: 19070208 RA Lab Sample ID: 580-87651-2 RA  
Matrix: Solid Lab File ID: 45H082119b013.D  
Analysis Method: 8081B Date Collected: 07/11/2019 15:10  
Extraction Method: 3546 Date Extracted: 08/16/2019 10:52  
Sample wt/vol: 10.283 (g) Date Analyzed: 08/21/2019 19:09  
Con. Extract Vol.: 10 (mL) Dilution Factor: 1  
Injection Volume: 1 (uL) GC Column: ZB-CLPest-2 ID: 0.25 (mm)  
% Moisture: 14.7 GPC Cleanup: (Y/N) N  
Analysis Batch No.: 309003 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
50-29-3	4,4'-DDT	17	<i>me</i>	2.3	0.42

FORM I  
PESTICIDES ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87651-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070208 DL Lab Sample ID: 580-87651-2 DL  
 Matrix: Solid Lab File ID: 45H083019a029.D  
 Analysis Method: 8081B Date Collected: 07/11/2019 15:10  
 Extraction Method: 3546 Date Extracted: 08/26/2019 11:31  
 Sample wt/vol: 10.047 (g) Date Analyzed: 08/30/2019 18:30  
 Con. Extract Vol.: 10 (mL) Dilution Factor: 3  
 Injection Volume: 1 (uL) GC Column: ZB-CLPest-1 ID: 0.25 (mm)  
 % Moisture: 14.7 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 309817 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
8001-35-2	Toxaphene	<del>ND</del> <u>H</u> <i>m</i>		350 <i>UJL</i>	87

CAS NO.	SURROGATE	%REC	Q	LIMITS
877-09-8	Tetrachloro-m-xylene	54		50-123
2051-24-3	DCB Decachlorobiphenyl	64		36-136

*m* *Q 979*

FORM I  
PESTICIDES ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87651-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070208 DL Lab Sample ID: 580-87651-2 DL  
 Matrix: Solid Lab File ID: 45H083019a029.D  
 Analysis Method: 8081B Date Collected: 07/11/2019 15:10  
 Extraction Method: 3546 Date Extracted: 08/26/2019 11:31  
 Sample wt/vol: 10.047(g) Date Analyzed: 08/30/2019 18:30  
 Con. Extract Vol.: 10(mL) Dilution Factor: 3  
 Injection Volume: 1(uL) GC Column: ZB-CLPest-1 ID: 0.25(mm)  
 % Moisture: 14.7 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 309817 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
8001-35-2	Toxaphene	ND		350	87

CAS NO.	SURROGATE	%REC	Q	LIMITS
877-09-8	Tetrachloro-m-xylene	54		50-123
2051-24-3	DCB Decachlorobiphenyl	64		36-136

FORM I  
PESTICIDES ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87651-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070209 Lab Sample ID: 580-87651-3  
 Matrix: Solid Lab File ID: 45G080619a028.D  
 Analysis Method: 8081B Date Collected: 07/11/2019 16:05  
 Extraction Method: 3546 Date Extracted: 07/24/2019 10:07  
 Sample wt/vol: 10.706(g) Date Analyzed: 08/06/2019 15:00  
 Con. Extract Vol.: 10(mL) Dilution Factor: 1  
 Injection Volume: 1(uL) GC Column: ZB-CLPest-2 ID: 0.25 (mm)  
 % Moisture: 16.8 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 307557 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
309-00-2	Aldrin	ND		3.4	0.43
319-84-6	alpha-BHC	ND		2.2	0.18
319-85-7	beta-BHC	ND		5.6	0.28
319-86-8	delta-BHC	ND		3.4	0.31
58-89-9	gamma-BHC (Lindane)	ND		2.2	0.84
72-54-8	4,4'-DDD	ND		2.2	0.26
72-55-9	4,4'-DDE	ND		2.2	0.42
50-29-3	4,4'-DDT	ND		2.2	0.42
60-57-1	Dieldrin	ND		2.2	0.39
959-98-8	Endosulfan I	ND		2.2	0.38
33213-65-9	Endosulfan II	ND		2.2	0.29
1031-07-8	Endosulfan sulfate	ND		2.2	0.31
72-20-8	Endrin	ND		2.2	0.53
7421-93-4	Endrin aldehyde	ND		22	5.4
76-44-8	Heptachlor	ND		3.4	0.21
1024-57-3	Heptachlor epoxide	ND		3.4	0.34
72-43-5	Methoxychlor	ND		11	0.42
53494-70-5	Endrin ketone	ND		2.2	0.47
8001-35-2	Toxaphene	ND		110	28
5103-71-9	cis-Chlordane	ND		2.2	0.84
5103-74-2	trans-Chlordane	ND		3.4	0.36

CAS NO.	SURROGATE	%REC	Q	LIMITS
877-09-8	Tetrachloro-m-xylene	53		50-123
2051-24-3	DCB Decachlorobiphenyl	76		36-136

*mw 9919*



FORM I  
PCBS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87651-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070207 Lab Sample ID: 580-87651-1  
 Matrix: Solid Lab File ID: 35G080519a019.d  
 Analysis Method: 8082A Date Collected: 07/11/2019 15:00  
 Extraction Method: 3546 Date Extracted: 07/24/2019 10:07  
 Sample wt/vol: 10.009(g) Date Analyzed: 08/05/2019 17:57  
 Con. Extract Vol.: 10 (mL) Dilution Factor: 1  
 Injection Volume: 1(uL) GC Column: ZB-CLPest-1 ID: 0.25 (mm)  
 % Moisture: 14.6 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 307509 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
12674-11-2	PCB-1016	ND	E2	0.023	0.0087
11104-28-2	PCB-1221	ND		0.023	0.0049
11141-16-5	PCB-1232	ND		0.023	0.0057
53469-21-9	PCB-1242	ND		0.023	0.0041
12672-29-6	PCB-1248	0.028		0.023	0.0034
11097-69-1	PCB-1254	ND		0.023	0.0043
11096-82-5	PCB-1260	ND		0.023	0.0087

CAS NO.	SURROGATE	%REC	Q	LIMITS
2051-24-3	DCB Decachlorobiphenyl	81		39-142
877-09-8	Tetrachloro-m-xylene	81		35-129

*mw 9-9-19*

FORM I  
PCBS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>Eurofins TestAmerica, Seattle</u>	Job No.: <u>580-87651-1</u>
SDG No.: _____	
Client Sample ID: <u>19070208</u>	Lab Sample ID: <u>580-87651-2</u>
Matrix: <u>Solid</u>	Lab File ID: <u>35H082019a043.d</u>
Analysis Method: <u>8082A</u>	Date Collected: <u>07/11/2019 15:10</u>
Extraction Method: <u>3546</u>	Date Extracted: <u>08/16/2019 10:52</u>
Sample wt/vol: <u>10.283(g)</u>	Date Analyzed: <u>08/20/2019 23:59</u>
Con. Extract Vol.: <u>10 (mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>1 (uL)</u>	GC Column: <u>ZB-CLPest-1</u> ID: <u>0.25 (mm)</u>
% Moisture: <u>14.7</u>	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>308888</u>	Units: <u>mg/Kg</u>

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
12674-11-2	PCB-1016	ND	H	0.023	0.0084
11104-28-2	PCB-1221	ND	H	0.023	0.0048
11141-16-5	PCB-1232	ND	H	0.023	0.0056
53469-21-9	PCB-1242	ND	H	0.023	0.0040
12672-29-6	PCB-1248	ND	H	0.023	0.0033
11097-69-1	PCB-1254	ND	H	0.023	0.0042
11096-82-5	PCB-1260	ND	H	0.023	0.0084

CAS NO.	SURROGATE	%REC	Q	LIMITS
2051-24-3	DCB Decachlorobiphenyl	73		39-142
877-09-8	Tetrachloro-m-xylene	83		35-129

*mw 9-9-19*

FORM I  
PCBS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87651-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070209 Lab Sample ID: 580-87651-3  
 Matrix: Solid Lab File ID: 35G080519a023.d  
 Analysis Method: 8082A Date Collected: 07/11/2019 16:05  
 Extraction Method: 3546 Date Extracted: 07/24/2019 10:07  
 Sample wt/vol: 10.706(g) Date Analyzed: 08/05/2019 19:04  
 Con. Extract Vol.: 10(mL) Dilution Factor: 1  
 Injection Volume: 1(uL) GC Column: ZB-CLPest-1 ID: 0.25 (mm)  
 % Moisture: 16.8 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 307509 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
12674-11-2	PCB-1016	ND		0.022	0.0083
11104-28-2	PCB-1221	ND		0.022	0.0047
11141-16-5	PCB-1232	ND		0.022	0.0055
53469-21-9	PCB-1242	ND		0.022	0.0039
12672-29-6	PCB-1248	ND		0.022	0.0033
11097-69-1	PCB-1254	ND		0.022	0.0042
11096-82-5	PCB-1260	ND		0.022	0.0083

CAS NO.	SURROGATE	%REC	Q	LIMITS
2051-24-3	DCB Decachlorobiphenyl	59		39-142
877-09-8	Tetrachloro-m-xylene	77		35-129

*mw 9-9-19*



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### MEMORANDUM

DATE: September 9, 2019

TO: Seth Wing, START-IV Project Manager, E & E, Seattle, WA

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington *MW*

SUBJ: **Organic Data Quality Assurance Review, May Creek Removal Action Site, Renton, Washington**

REF: TO: TO-68HE0718F0470      PAN: 1004530.0470.001.01

The data quality assurance review of three soil samples collected from the May Creek Removal Action site located in Renton, Washington, has been completed. Analysis for Extended Diesel Range Total Petroleum Hydrocarbons (Ecology Method NWTPH-Dx) was performed by Test America, Inc., Tacoma, Washington. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Manual Process (S2B/4VM).

The samples were numbered:    19070207      19070208      19070209

#### Data Qualifications:

##### **1. Sample Holding Times: Acceptable.**

The samples were maintained at  $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ . The samples were collected on July 11, 2019, extracted on July 25, 2019, and analyzed by July 29, 2019, therefore meeting QC criteria of less than 14 days between collection and extraction for soil samples and less than 40 days between extraction and analysis.

##### **2. Initial Calibration: Acceptable.**

Calculations were verified as correct. All relative percent differences (RPDs) were within the laboratory control limits.

##### **3. Continuing Calibration: Acceptable.**

Calculations were verified as correct. All percent differences (%Ds) were within the laboratory control limits.

##### **4. Blanks: Satisfactory.**

A method blank was analyzed for each extraction batch for each matrix and analysis system. Diesel- and motor oil-range TPHs were not detected in the method blank except motor oil (18.1 mg/kg); motor oil results less than the reporting limit were qualified as not detected (U).

**5. System Monitoring Compounds (SMC): Acceptable.**

All recoveries of the SMCs were within QC limits.

**6. Blank Spike (BS) and BS Duplicate (BSD): Acceptable.**

BS and BSD recoveries were within QC limits.

**7. Duplicates: Acceptable.**

All duplicate and spike duplicate results were within QC limits.

**8. Quantitation and Quantitation Limits: Acceptable.**

Sample concentrations were correctly calculated.

**9. Laboratory Contact: Not Required.**

No laboratory contact was required.

**10. Overall Assessment of Data for Use**

A total of 6 results were validated in this data memorandum. No sample results were qualified as estimated quantities (J) based on duplicate precision outliers, spike accuracy outliers, holding time outliers, incorrect sample containers, or sample temperature outliers. No sample results were rejected (R).

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the analytical method(s), the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, and/or the Office of Emergency and Remedial Response Publication "National Functional Guidelines for Superfund Organic Methods Data Review, January 2017". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

H - The sample result is biased high.

J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

K - The bias of the sample is not known.

L - The sample result is biased low.

Q - Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.

R - The data is rejected and unusable. The analyte may or may not be present in the sample.

- U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.

FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87651-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070207 Lab Sample ID: 580-87651-1  
 Matrix: Solid Lab File ID: 036F4201.D  
 Analysis Method: NWTPH-Dx Date Collected: 07/11/2019 15:00  
 Extraction Method: 3546 Date Extracted: 07/25/2019 09:43  
 Sample wt/vol: 10.791 (g) Date Analyzed: 07/29/2019 06:40  
 Con. Extract Vol.: 10 (mL) Dilution Factor: 10  
 Injection Volume: 1 (uL) GC Column: ZB-1HT ID: 0.25 (mm)  
 % Moisture: 14.6 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 306831 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00163	#2 Diesel (C10-C24)	390	JR	540	130
STL00299	Motor Oil (>C24-C36)	1500	R	540	190

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	78		50-150

*mw 9-9-19*

FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87651-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070208 Lab Sample ID: 580-87651-2  
 Matrix: Solid Lab File ID: 037F4301.D  
 Analysis Method: NWTPH-Dx Date Collected: 07/11/2019 15:10  
 Extraction Method: 3546 Date Extracted: 07/25/2019 09:43  
 Sample wt/vol: 10.354(g) Date Analyzed: 07/29/2019 07:02  
 Con. Extract Vol.: 10(mL) Dilution Factor: 10  
 Injection Volume: 1(uL) GC Column: ZB-1HT ID: 0.25(mm)  
 % Moisture: 14.7 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 306831 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00163	#2 Diesel (C10-C24)	250	J	570	140
STL00299	Motor Oil (>C24-C36)	2000	B	570	200

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	71		50-150

*mm 9919*



FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87651-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070209 Lab Sample ID: 580-87651-3  
 Matrix: Solid Lab File ID: 038F4401.D  
 Analysis Method: NWTPH-Dx Date Collected: 07/11/2019 16:05  
 Extraction Method: 3546 Date Extracted: 07/25/2019 09:43  
 Sample wt/vol: 11.060 (g) Date Analyzed: 07/29/2019 07:24  
 Con. Extract Vol.: 10 (mL) Dilution Factor: 1  
 Injection Volume: 1 (uL) GC Column: ZB-1HT ID: 0.25 (mm)  
 % Moisture: 16.8 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 306831 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00163	#2 Diesel (C10-C24)	<del>ND</del>		54	13
STL00299	Motor Oil (>C24-C36)	<del>20</del>		54	19

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	91		50-150



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### MEMORANDUM

DATE: January 8, 2020

TO: Seth Wing, START-IV Project Manager, E & E, Seattle, WA

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington *mw*

SUBJ: **Inorganic Data Quality Assurance Review, May Creek Removal Action Site, Renton, Washington**

REF: TO: TO-68HE0718F0470      PAN: 1004530.0470.001.01

The data quality assurance review of 2 soil samples collected from the May Creek Removal Action site in Renton, Washington, has been completed. Target Analyte List (TAL) metals analyses (EPA Methods 6010 and 7471) were performed by Test America, Inc., Tacoma, Washington. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Manual Process (S2B/4VM).

The samples were numbered: 19070205      19070206

#### Data Qualifications:

**1. Sample Holding Times: Acceptable.**

The samples were maintained at  $< 6^{\circ}\text{C}$  (only applies to mercury). The samples were collected on July 10, 2019, and were analyzed by July 18, 2019, therefore meeting QC criteria of less than 6 months between collection, extraction, and analysis (28 days for mercury).

**2. Initial and Continuing Calibration: Acceptable.**

A minimum of one calibration standard and a blank were analyzed at the beginning of the ICP analysis sequence and after every 10 samples. No results were greater than 110% of the highest calibration standard. All ICP recoveries were within the QC limits. All AA recoveries were within QC limits and the initial calibration correlation coefficient was  $> 0.995$ .

**3. Blanks: Satisfactory.**

A preparation blank was analyzed for each 20 samples or per matrix per concentration level. Blanks were analyzed after each Initial or Continuing Calibration Verification. There were no detections in any blanks that potentially affected sample results except beryllium associated with sample 19070206 and cadmium associated with both samples; associated sample results were qualified as not detected (U).

**4. ICP Interference Check Sample: Acceptable.**

An Interference Check Sample (ICS) was analyzed at the beginning of each sequence or at least twice every 8 hours, whichever was more frequent. All applicable ICS (solution AB) results were within QC limits of 80% - 120% recovery.

**5. Duplicate Analysis: Acceptable.**

A laboratory spike duplicate analysis was performed per SDG or per matrix per concentration level, whichever was more frequent. All spike duplicate results were within QC limits.

**6. Laboratory Control Sample Analysis: Acceptable.**

A Laboratory Control Sample (LCS) and LCS duplicate were analyzed per SDG per matrix. All LCS results were within the established control limits.

**7. Overall Assessment of Data for Use**

A total of 46 results were validated in this data memorandum. No sample results were qualified as estimated quantities (J) based on duplicate precision outliers, holding time outliers, incorrect sample containers, spike accuracy outliers, or sample temperature outliers. No sample results were rejected (R).

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the analytical method(s), the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, and/or the Office of Emergency and Remedial Response Publication "National Functional Guidelines for Superfund Inorganic Methods Data Review, January 2017". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

- H - The sample result is biased high.
- J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
- K - The bias of the sample is not known.
- L - The sample result is biased low.
- Q - Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.
- R - The data is rejected and unusable. The analyte may or may not be present in the sample.
- U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.

1A-IN  
INORGANIC ANALYSIS DATA SHEET  
METALS

Client Sample ID: 19070205

Lab Sample ID: 580-87658-1

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87658-1

SDG ID.:

Matrix: Solid

Date Sampled: 07/10/2019 15:15

Reporting Basis: DRY

Date Received: 07/13/2019 16:48

% Solids: 81.7

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7429-90-5	Aluminum	18000	56	7.4	mg/Kg			1	6010D
7440-36-0	Antimony	0.59	2.2	0.20	mg/Kg	JQ		1	6010D
7440-38-2	Arsenic	5.4	2.2	0.18	mg/Kg			1	6010D
7440-39-3	Barium	57	0.37	0.059	mg/Kg		NO	1	6010D
7440-41-7	Beryllium	0.29	0.74	0.011	mg/Kg	JQ		1	6010D
7440-43-9	Cadmium	0.16	0.74	0.036	mg/Kg	JQ		1	6010D
7440-70-2	Calcium	2800	41	7.4	mg/Kg			1	6010D
7440-47-3	Chromium	22	0.96	0.16	mg/Kg			1	6010D
7440-48-4	Cobalt	7.4	0.74	0.019	mg/Kg			1	6010D
7440-50-8	Copper	18	1.9	0.30	mg/Kg			1	6010D
7439-89-6	Iron	18000	48	12	mg/Kg			1	6010D
7439-92-1	Lead	3.3	1.1	0.16	mg/Kg			1	6010D
7439-95-4	Magnesium	3500	41	5.9	mg/Kg			1	6010D
7439-96-5	Manganese	270	1.5	0.28	mg/Kg			1	6010D
7440-02-0	Nickel	20	0.74	0.076	mg/Kg			1	6010D
7440-09-7	Potassium	280	120	5.1	mg/Kg		NO	1	6010D
7782-49-2	Selenium	ND	3.7	0.29	mg/Kg			1	6010D
7440-22-4	Silver	ND	1.9	0.42	mg/Kg			1	6010D
7440-23-5	Sodium	210	74	14	mg/Kg			1	6010D
7440-28-0	Thallium	ND	3.7	0.31	mg/Kg			1	6010D
7440-62-2	Vanadium	45	1.5	0.19	mg/Kg			1	6010D
7440-66-6	Zinc	25	3.0	0.71	mg/Kg			1	6010D
7439-97-6	Mercury	0.041	0.031	0.0093	mg/Kg			1	7471A

1A-IN  
INORGANIC ANALYSIS DATA SHEET  
METALS

Client Sample ID: 19070206

Lab Sample ID: 580-87658-2

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87658-1

SDG ID.:

Matrix: Solid

Date Sampled: 07/10/2019 15:45

Reporting Basis: DRY

Date Received: 07/13/2019 16:48

% Solids: 83.3

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7429-90-5	Aluminum	8500	51	6.8	mg/Kg			1	6010D
7440-36-0	Antimony	<del>10</del> <i>AW</i>	2.1	0.18	mg/Kg			1	6010D
7440-38-2	Arsenic	<del>37</del> <i>AW</i>	2.1	0.17	mg/Kg			1	6010D
7440-39-3	Barium	35	0.34	0.054	mg/Kg		<i>AW</i>	1	6010D
7440-41-7	Beryllium	<del>0.14</del> <i>AW</i>	0.68	0.010	mg/Kg	<i>J</i>	<i>AW</i>	1	6010D
7440-43-9	Cadmium	<del>0.13</del> <i>AW</i>	0.68	0.034	mg/Kg	<i>J</i>	<i>AW</i>	1	6010D
7440-70-2	Calcium	3600	38	6.8	mg/Kg			1	6010D
7440-47-3	Chromium	20	0.89	0.15	mg/Kg			1	6010D
7440-48-4	Cobalt	6.5	0.68	0.017	mg/Kg			1	6010D
7440-50-8	Copper	15	1.7	0.27	mg/Kg			1	6010D
7439-89-6	Iron	14000	44	11	mg/Kg			1	6010D
7439-92-1	Lead	1.6	1.0	0.15	mg/Kg			1	6010D
7439-95-4	Magnesium	3200	38	5.4	mg/Kg			1	6010D
7439-96-5	Manganese	240	1.4	0.26	mg/Kg			1	6010D
7440-02-0	Nickel	19	0.68	0.070	mg/Kg			1	6010D
7440-09-7	Potassium	330	110	4.7	mg/Kg		<i>AW</i>	1	6010D
7782-49-2	Selenium	0.31	3.4	0.27	mg/Kg	<i>J</i>	<i>AW</i>	1	6010D
7440-22-4	Silver	<del>10</del> <i>AW</i>	1.7	0.38	mg/Kg	<i>J</i>		1	6010D
7440-23-5	Sodium	300	68	13	mg/Kg			1	6010D
7440-28-0	Thallium	<del>10</del> <i>AW</i>	3.4	0.29	mg/Kg			1	6010D
7440-62-2	Vanadium	33	1.4	0.18	mg/Kg			1	6010D
7440-66-6	Zinc	25	2.7	0.65	mg/Kg			1	6010D
7439-97-6	Mercury	0.014	0.025	0.0075	mg/Kg	<i>J</i>		1	7471A

*19070206*





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Global Environmental Specialists

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### MEMORANDUM

DATE: August 14, 2019

TO: Seth Wing, START-IV Project Manager, E & E, Seattle, WA

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington 

SUBJ: Organic Data Quality Assurance Review, May Creek Removal Action Site, Renton, Washington

REF: TO: TO-68HE0718F0470 PAN: 1004530.0470.001.01

The data quality assurance review of two soil samples collected from the May Creek Removal Action site located in Renton, Washington, has been completed. Analysis for Extended Diesel Range Total Petroleum Hydrocarbons (Ecology Method NWTPH-Dx) was performed by Test America, Inc., Tacoma, Washington. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Manual Process (S2B/4VM).

The samples were numbered: 19070205 19070206

#### Data Qualifications:

**1. Sample Holding Times: Acceptable.**

The samples were maintained at  $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ . The samples were collected on July 10, 2019, extracted on July 23, 2019, and analyzed by July 28, 2019, therefore meeting QC criteria of less than 14 days between collection and extraction for soil samples and less than 40 days between extraction and analysis.

**2. Initial Calibration: Acceptable.**

Calculations were verified as correct. All relative percent differences (RPDs) were within the laboratory control limits.

**3. Continuing Calibration: Acceptable.**

Calculations were verified as correct. All percent differences (%Ds) were within the laboratory control limits.

**4. Blanks: Acceptable.**

A method blank was analyzed for each extraction batch for each matrix and analysis system. Diesel- and motor oil-range TPHs were not detected in the method blank.

**5. System Monitoring Compounds (SMC): Acceptable.**

All recoveries of the SMCs were within QC limits.

**6. Blank Spike (BS) and BS Duplicate (BSD): Acceptable.**

BS and BSD recoveries were within QC limits.

**7. Duplicates: Acceptable.**

All spike duplicate results were within QC limits.

**8. Quantitation and Quantitation Limits: Acceptable.**

Sample concentrations were correctly calculated.

**9. Laboratory Contact: Not Required.**

No laboratory contact was required.

**10. Overall Assessment of Data for Use**

A total of four results were validated in this data memorandum. No sample results were qualified as estimated quantities (J) based on duplicate precision outliers, spike accuracy outliers, holding time outliers, incorrect sample containers, or sample temperature outliers. No sample results were rejected (R).

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the analytical method(s), the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, and/or the Office of Emergency and Remedial Response Publication "National Functional Guidelines for Superfund Organic Methods Data Review, January 2017". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

**Data Qualifiers and Definitions**

H - The sample result is biased high.

J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

K - The bias of the sample is not known.

L - The sample result is biased low.

Q - Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.

R - The data is rejected and unusable. The analyte may or may not be present in the sample.

U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.

UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.



FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87658-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070205 Lab Sample ID: 580-87658-1  
 Matrix: Solid Lab File ID: 015F1901.D  
 Analysis Method: NWTPH-Dx Date Collected: 07/10/2019 15:15  
 Extraction Method: 3546 Date Extracted: 07/23/2019 11:06  
 Sample wt/vol: 12.480(g) Date Analyzed: 07/28/2019 22:12  
 Con. Extract Vol.: 10(mL) Dilution Factor: 1  
 Injection Volume: 1(uL) GC Column: ZB-1HT ID: 0.25(mm)  
 % Moisture: 18.3 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 306831 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00163	#2 Diesel (C10-C24)	<i>MDL</i>		49	12
STL00299	Motor Oil (>C24-C36)	18	<i>JQ</i>	49	17

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	82		50-150

*MW 8-14-19*

FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>Eurofins TestAmerica, Seattle</u>	Job No.: <u>580-87658-1</u>
SDG No.: _____	
Client Sample ID: <u>19070206</u>	Lab Sample ID: <u>580-87658-2</u>
Matrix: <u>Solid</u>	Lab File ID: <u>016F2001.D</u>
Analysis Method: <u>NWTPH-Dx</u>	Date Collected: <u>07/10/2019 15:45</u>
Extraction Method: <u>3546</u>	Date Extracted: <u>07/23/2019 11:06</u>
Sample wt/vol: <u>11.613(g)</u>	Date Analyzed: <u>07/28/2019 22:35</u>
Con. Extract Vol.: <u>10(mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>1(uL)</u>	GC Column: <u>ZB-1HT</u> ID: <u>0.25(mm)</u>
% Moisture: <u>16.7</u>	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>306831</u>	Units: <u>mg/Kg</u>

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00163	#2 Diesel (C10-C24)	<del>ND</del>		52	13
STL00299	Motor Oil (>C24-C36)	<del>ND</del>		52	18

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	84		50-150

*mw81419*



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### MEMORANDUM

DATE: August 14, 2019

TO: Seth Wing, START-IV Project Manager, E & E, Seattle, Washington

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington *MW*

SUBJ: **Organic Data Quality Assurance Review, Gorst Creek Removal Action Site, Port Orchard, Washington**

REF: TO: TO-0520-001 PAN: 1004530.0019.001.02

The data quality assurance review of 3 soil samples collected from the Gorst Creek Removal Action site located in Port Orchard, Washington, has been completed. Analysis for Extended Gasoline Range Total Petroleum Hydrocarbons (Ecology Method NWTPH-Gx) analyses was performed by Test America, Inc., Tacoma, Washington. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Manual Process (S2B/4VM).

The samples were numbered: 19070205 19070206 19070604

#### Data Qualifications:

**1. Sample Holding Times: Acceptable.**

The samples were maintained and received within the QC limits of  $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ . The samples were collected on July 10 or 11, 2019, were received at the laboratory within 48 hours of collection, and were analyzed by July 25, 2019, therefore meeting QC criteria of less than 14 days between collection and analysis for soil samples.

**2. Initial Calibration: Acceptable.**

Calculations were verified as correct. All relative percent differences (RPDs) were less than or equal to the laboratory control limits.

**3. Continuing Calibration: Acceptable.**

Calculations were verified as correct. All percent differences were less than or equal to the laboratory control limits.

**4. Blanks: Acceptable.**

A method blank was analyzed at the required frequency of every 12 hours for each matrix, preparation technique, and analysis system. Gasoline-range TPHs were not detected in the method blank or in the trip blank.

**5. System Monitoring Compounds (SMC): Acceptable.**

All recoveries of the SMCs were greater than 10% and within QC limits.

**6. Blank Spikes (BS) and BS Duplicate (BSD) Analyses: Acceptable.**

BS and BSD results were within laboratory QC limits.

**7. Duplicates: Acceptable.**

All spike duplicate results were within laboratory QC limits.

**8. Quantitation and Quantitation Limits: Acceptable.**

Sample quantitation and sample quantitation limits were correctly calculated.

**9. Laboratory Contact: Not Required.**

No laboratory contact was required.

**10. Overall Assessment of Data for Use**

Samples 19070205 and 19070206 had weights significantly greater than the method specified weight; associated sample results were qualified as estimated quantities with an unknown bias (JK or UJK).

A total of three results were validated in this data memorandum. No sample results were qualified as estimated quantities (J) based on duplicate precision outliers, spike accuracy outliers, holding time outliers, incorrect sample containers, or sample temperature outliers. No sample results were rejected (R).

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the analytical method(s), the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, and/or the Office of Emergency and Remedial Response Publication "National Functional Guidelines for Superfund Organic Methods Data Review, January 2017". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

H - The sample result is biased high.

J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

K - The bias of the sample is not known.

L - The sample result is biased low.

- Q - Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.
- R - The data is rejected and unusable. The analyte may or may not be present in the sample.
- U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.

FORM I  
GC VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87658-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070205 Lab Sample ID: 580-87658-1  
 Matrix: Solid Lab File ID: 07191910.D  
 Analysis Method: NWTPH-Gx Date Collected: 07/10/2019 15:15  
 Sample wt/vol: 14.274(g) Date Analyzed: 07/19/2019 14:01  
 Soil Aliquot Vol: 1.075 (mL) Dilution Factor: 1  
 Soil Extract Vol.: 10 (mL) GC Column: RTX-VRX ID: 0.45 (mm)  
 % Moisture: 18.3 Level: (low/med) Medium  
 Analysis Batch No.: 306151 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00228	Gasoline	ND		5.4	2.5

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	99		50-150

*MW 8/14/19*

FORM I  
GC VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87658-1  
SDG No.: \_\_\_\_\_  
Client Sample ID: 19070206 Lab Sample ID: 580-87658-2  
Matrix: Solid Lab File ID: 07191911.D  
Analysis Method: NWTPH-Gx Date Collected: 07/10/2019 15:45  
Sample wt/vol: 14.607(g) Date Analyzed: 07/19/2019 14:31  
Soil Aliquot Vol: 1.075 (mL) Dilution Factor: 1  
Soil Extract Vol.: 10 (mL) GC Column: RTX-VRX ID: 0.45 (mm)  
% Moisture: 16.7 Level: (low/med) Medium  
Analysis Batch No.: 306151 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00228	Gasoline	<del>ND</del> <i>Mu</i>		5.1	<i>OK</i> 2.4

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	98		50-150

*Mu 8/14/19*

FORM I  
GC VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87658-1  
SDG No.: \_\_\_\_\_  
Client Sample ID: 19070604 Lab Sample ID: 580-87658-3  
Matrix: Solid Lab File ID: 07251918.D  
Analysis Method: NWTPH-Gx Date Collected: 07/11/2019 12:10  
Sample wt/vol: 10(g) Date Analyzed: 07/25/2019 18:32  
Soil Aliquot Vol: 1.075 (mL) Dilution Factor: 1  
Soil Extract Vol.: 10 (mL) GC Column: RTX-VRX ID: 0.45 (mm)  
% Moisture: \_\_\_\_\_ Level: (low/med) Medium  
Analysis Batch No.: 306688 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00228	Gasoline	ND		5.0	2.3

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	97		50-150

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8-14-19





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### MEMORANDUM

DATE: August 14, 2019

TO: Seth Wing, START-IV Project Manager, E & E, Seattle, WA

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington *MW*

SUBJ: **Organic Data Quality Assurance Review, May Creek Removal Action Site, Renton, Washington**

REF: TO: TO-68HE0718F0470 PAN: 1004530.0470.001.01

The data quality assurance review of 2 soil samples collected from the May Creek Removal Action site in Renton, Washington, has been completed. Semivolatile Organic Compound (SVOC) analysis (EPA Method 8270) was performed by Test America, Inc., Tacoma, Washington. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Manual Process (S2B/4VM).

The samples were numbered: 19070205 19070206

#### Data Qualifications:

**1. Sample Holding Times: Acceptable.**

The samples were maintained and received within the QC limits of 0°C to 6°C. The samples were collected on July 10, 2019, were extracted on July 19, 2019, and were analyzed by July 22, 2019, therefore meeting holding time criteria of less than 14 days between collection and extraction and less than 40 days between extraction and analysis.

**2. Tuning: Acceptable.**

Tuning was performed at the beginning of each 12-hour analysis sequence. All results were within QC limits.

**3. Initial Calibration: Satisfactory.**

All average Relative Response Factors (RRFs) were within the QC limits except n-nitroso-di-n-propylamine; associated sample quantitation limits were rejected (R). All Relative Standard Deviations (RSDs) were within the QC limits.

**4. Continuing Calibration: Acceptable.**

All RRFs were within the QC limits. All % differences were within the QC limits.

**5. Blanks: Satisfactory.**

A method blank was analyzed for each 20 sample batch per matrix. There were no detections in any method blank except butyl benzyl phthalate (112 ug/kg). Associated positive sample results less than the reporting limit were qualified as not detected (U).

**6. System Monitoring Compounds (SMCs): Satisfactory.**

All SMC recoveries were within QC limits except one low recovery (3% below QC limits) in the method blank; no actions were taken as all other SMCs were within QC limits.

**7. Blank Spike (BS) Analysis: Acceptable.**

BS analysis were performed per SDG or per matrix per concentration level, whichever was more frequent. All recoveries were within QC limits.

**8. Internal Standards: Acceptable.**

All internal standards (IS) were within  $\pm 30$  seconds of the continuing calibration IS retention times. All area counts were within 50 % to 200 % of the continuing calibration area counts.

**9. Performance Evaluation Sample Analysis: Not Provided.**

Performance evaluation samples were not provided to the laboratory.

**10. Overall Assessment of Data for Use**

A total of 134 results were validated in this data memorandum. No sample results were qualified as estimated quantities (J) based on duplicate precision outliers, spike accuracy outliers, holding time outliers, incorrect sample containers, or sample temperature outliers. The following analyte was detected in the method blank: butyl benzyl phthalate. Two sample results were rejected (R).

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the analytical method(s), the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, and/or the Office of Emergency and Remedial Response Publication "National Functional Guidelines for Superfund Organic Methods Data Review, January 2017". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

H - The sample result is biased high.

J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

K - The bias of the sample is not known.

L - The sample result is biased low.

N - The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification".

NJ - The analyte has been "tentatively identified" or "presumptively" as present and the associated numerical value is the estimated concentration in the sample.

- Q - Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.
- R - The data is rejected and unusable. The analyte may or may not be present in the sample.
- U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.

FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87658-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070205 Lab Sample ID: 580-87658-1  
 Matrix: Solid Lab File ID: 0722A010.D  
 Analysis Method: 8270D Date Collected: 07/10/2019 15:15  
 Extract. Method: 3550B Date Extracted: 07/19/2019 10:03  
 Sample wt/vol: 10.187(g) Date Analyzed: 07/22/2019 13:47  
 Con. Extract Vol.: 10(mL) Dilution Factor: 1  
 Injection Volume: 1(uL) Level: (low/med) Low  
 % Moisture: 18.3 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 306240 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
108-95-2	Phenol	ND		180	28
111-44-4	Bis(2-chloroethyl)ether	ND		120	9.2
95-57-8	2-Chlorophenol	ND		240	16
541-73-1	1,3-Dichlorobenzene	ND		60	5.8
106-46-7	1,4-Dichlorobenzene	ND		60	10
100-51-6	Benzyl alcohol	ND		600	92
95-50-1	1,2-Dichlorobenzene	ND		60	14
95-48-7	2-Methylphenol	ND		180	12
15831-10-4	3 & 4 Methylphenol	ND		240	18
621-64-7	N-Nitrosodi-n-propylamine	ND		240	26
67-72-1	Hexachloroethane	ND		180	11
98-95-3	Nitrobenzene	ND		240	24
78-59-1	Isophorone	ND		180	8.9
88-75-5	2-Nitrophenol	ND		240	25
105-67-9	2,4-Dimethylphenol	ND		120	18
65-85-0	Benzoic acid	ND		2400	700
111-91-1	Bis(2-chloroethoxy)methane	ND		240	22
120-83-2	2,4-Dichlorophenol	ND		120	18
120-82-1	1,2,4-Trichlorobenzene	ND		60	7.2
91-20-3	Naphthalene	ND		30	6.0
106-47-8	4-Chloroaniline	ND		1800	480
87-68-3	Hexachlorobutadiene	ND		60	18
59-50-7	4-Chloro-3-methylphenol	ND		180	40
91-57-6	2-Methylnaphthalene	ND		60	11
77-47-4	Hexachlorocyclopentadiene	ND		120	24
88-06-2	2,4,6-Trichlorophenol	ND		180	43
95-95-4	2,4,5-Trichlorophenol	ND		240	54
91-58-7	2-Chloronaphthalene	ND		30	6.0
88-74-4	2-Nitroaniline	ND		120	18
131-11-3	Dimethyl phthalate	ND		180	16
208-96-8	Acenaphthylene	ND		30	6.0
606-20-2	2,6-Dinitrotoluene	ND		180	41
99-09-2	3-Nitroaniline	ND		240	48
83-32-9	Acenaphthene	ND		30	6.0

FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87658-1

SDG No.:

Client Sample ID: 19070205

Lab Sample ID: 580-87658-1

Matrix: Solid

Lab File ID: 0722A010.D

Analysis Method: 8270D

Date Collected: 07/10/2019 15:15

Extract. Method: 3550B

Date Extracted: 07/19/2019 10:03

Sample wt/vol: 10.187(g)

Date Analyzed: 07/22/2019 13:47

Con. Extract Vol.: 10(mL)

Dilution Factor: 1

Injection Volume: 1(uL)

Level: (low/med) Low

% Moisture: 18.3

GPC Cleanup: (Y/N) N

Analysis Batch No.: 306240

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
51-28-5	2,4-Dinitrophenol	ND		1200	240
100-02-7	4-Nitrophenol	ND		1800	440
132-64-9	Dibenzofuran	ND		180	7.1
121-14-2	2,4-Dinitrotoluene	ND		240	52
84-66-2	Diethyl phthalate	ND		1800	91
7005-72-3	4-Chlorophenyl phenyl ether	ND		240	7.6
86-73-7	Fluorene	ND		30	6.0
100-01-6	4-Nitroaniline	ND		180	60
534-52-1	4,6-Dinitro-2-methylphenol	ND		1200	120
86-30-6	N-Nitrosodiphenylamine	ND		72	9.6
101-55-3	4-Bromophenyl phenyl ether	ND		240	11
118-74-1	Hexachlorobenzene	ND		60	18
87-86-5	Pentachlorophenol	ND		540	160
85-01-8	Phenanthrene	ND		72	14
120-12-7	Anthracene	ND		30	6.0
84-74-2	Di-n-butyl phthalate	ND		600	68
206-44-0	Fluoranthene	ND		30	6.0
129-00-0	Pyrene	ND		72	7.7
85-68-7	Butyl benzyl phthalate	ND		240	61
91-94-1	3,3'-Dichlorobenzidine	ND		480	120
56-55-3	Benzo[a]anthracene	ND		30	6.0
218-01-9	Chrysene	ND		72	16
117-81-7	Bis(2-ethylhexyl) phthalate	620	JQ	720	85
117-84-0	Di-n-octyl phthalate	ND		180	68
50-32-8	Benzo[a]pyrene	ND		72	16
193-39-5	Indeno[1,2,3-cd]pyrene	ND		48	6.0
53-70-3	Dibenz(a,h)anthracene	ND		60	14
191-24-2	Benzo[g,h,i]perylene	ND		72	11
86-74-8	Carbazole	ND		180	9.8
90-12-0	1-Methylnaphthalene	ND		36	6.0
205-99-2	Benzo[b]fluoranthene	ND		30	6.0
207-08-9	Benzo[k]fluoranthene	ND		72	17
108-60-1	bis(chloroisopropyl) ether	ND		240	17

FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87658-1  
SDG No.: \_\_\_\_\_  
Client Sample ID: 19070205 Lab Sample ID: 580-87658-1  
Matrix: Solid Lab File ID: 0722A010.D  
Analysis Method: 8270D Date Collected: 07/10/2019 15:15  
Extract. Method: 3550B Date Extracted: 07/19/2019 10:03  
Sample wt/vol: 10.187(g) Date Analyzed: 07/22/2019 13:47  
Con. Extract Vol.: 10(mL) Dilution Factor: 1  
Injection Volume: 1(uL) Level: (low/med) Low  
% Moisture: 18.3 GPC Cleanup: (Y/N) N  
Analysis Batch No.: 306240 Units: ug/Kg

CAS NO.	SURROGATE	%REC	Q	LIMITS
367-12-4	2-Fluorophenol (Surr)	97		60-125
4165-62-2	Phenol-d5 (Surr)	96		59-120
4165-60-0	Nitrobenzene-d5 (Surr)	86		62-120
321-60-8	2-Fluorobiphenyl	76		57-120
118-79-6	2,4,6-Tribromophenol (Surr)	96		52-125
1718-51-0	Terphenyl-d14 (Surr)	109		58-120

*Handwritten signature: JMW 8/14/19*

FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87658-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070206

Lab Sample ID: 580-87658-2

Matrix: Solid

Lab File ID: 0722A011.D

Analysis Method: 8270D

Date Collected: 07/10/2019 15:45

Extract. Method: 3550B

Date Extracted: 07/19/2019 10:03

Sample wt/vol: 10.304(g)

Date Analyzed: 07/22/2019 14:11

Con. Extract Vol.: 10(mL)

Dilution Factor: 1

Injection Volume: 1(uL)

Level: (low/med) Low

% Moisture: 16.7

GPC Cleanup: (Y/N) N

Analysis Batch No.: 306240

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
108-95-2	Phenol	ND		170	27
111-44-4	Bis(2-chloroethyl)ether	ND		120	9.0
95-57-8	2-Chlorophenol	ND		230	15
541-73-1	1,3-Dichlorobenzene	ND		58	5.6
106-46-7	1,4-Dichlorobenzene	ND		58	9.7
100-51-6	Benzyl alcohol	ND		580	90
95-50-1	1,2-Dichlorobenzene	ND		58	14
95-48-7	2-Methylphenol	ND		170	11
15831-10-4	3 & 4 Methylphenol	ND		230	17
621-64-7	N-Nitrosodi-n-propylamine	ND		230	26
67-72-1	Hexachloroethane	ND		170	10
98-95-3	Nitrobenzene	ND		230	23
78-59-1	Isophorone	ND		170	8.6
88-75-5	2-Nitrophenol	ND		230	24
105-67-9	2,4-Dimethylphenol	ND		120	17
65-85-0	Benzoic acid	ND		2300	670
111-91-1	Bis(2-chloroethoxy)methane	ND		230	21
120-83-2	2,4-Dichlorophenol	ND		120	17
120-82-1	1,2,4-Trichlorobenzene	ND		58	7.0
91-20-3	Naphthalene	ND		29	5.8
106-47-8	4-Chloroaniline	ND		1700	470
87-68-3	Hexachlorobutadiene	ND		58	17
59-50-7	4-Chloro-3-methylphenol	ND		170	38
91-57-6	2-Methylnaphthalene	ND		58	10
77-47-4	Hexachlorocyclopentadiene	ND		120	23
88-06-2	2,4,6-Trichlorophenol	ND		170	42
95-95-4	2,4,5-Trichlorophenol	ND		230	52
91-58-7	2-Chloronaphthalene	ND		29	5.8
88-74-4	2-Nitroaniline	ND		120	17
131-11-3	Dimethyl phthalate	ND		170	15
208-96-8	Acenaphthylene	ND		29	5.8
606-20-2	2,6-Dinitrotoluene	ND		170	40
99-09-2	3-Nitroaniline	ND		230	47
83-32-9	Acenaphthene	ND		29	5.8

FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87658-1

SDG No.:

Client Sample ID: 19070206

Lab Sample ID: 580-87658-2

Matrix: Solid

Lab File ID: 0722A011.D

Analysis Method: 8270D

Date Collected: 07/10/2019 15:45

Extract. Method: 3550B

Date Extracted: 07/19/2019 10:03

Sample wt/vol: 10.304(g)

Date Analyzed: 07/22/2019 14:11

Con. Extract Vol.: 10(mL)

Dilution Factor: 1

Injection Volume: 1(uL)

Level: (low/med) Low

% Moisture: 16.7

GPC Cleanup: (Y/N) N

Analysis Batch No.: 306240

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
51-28-5	2,4-Dinitrophenol	ND		1200	230
100-02-7	4-Nitrophenol	ND		1700	430
132-64-9	Dibenzofuran	ND		170	6.9
121-14-2	2,4-Dinitrotoluene	ND		230	50
84-66-2	Diethyl phthalate	ND		1700	89
7005-72-3	4-Chlorophenyl phenyl ether	ND		230	7.3
86-73-7	Fluorene	ND		29	5.8
100-01-6	4-Nitroaniline	ND		170	58
534-52-1	4,6-Dinitro-2-methylphenol	ND		1200	120
86-30-6	N-Nitrosodiphenylamine	ND		70	9.3
101-55-3	4-Bromophenyl phenyl ether	ND		230	11
118-74-1	Hexachlorobenzene	ND		58	17
87-86-5	Pentachlorophenol	ND		520	150
85-01-8	Phenanthrene	ND		70	14
120-12-7	Anthracene	ND		29	5.8
84-74-2	Di-n-butyl phthalate	ND		580	66
206-44-0	Fluoranthene	ND		29	5.8
129-00-0	Pyrene	ND		70	7.5
85-68-7	Butyl benzyl phthalate	ND		230	59
91-94-1	3,3'-Dichlorobenzidine	ND		470	120
56-55-3	Benzo[a]anthracene	ND	ILW	29	5.8
218-01-9	Chrysene	ND	ILW	70	15
117-81-7	Bis(2-ethylhexyl) phthalate	470	JC	700	83
117-84-0	Di-n-octyl phthalate	ND		170	66
50-32-8	Benzo[a]pyrene	ND		70	15
193-39-5	Indeno[1,2,3-cd]pyrene	ND		47	5.8
53-70-3	Dibenz(a,h)anthracene	ND		58	14
191-24-2	Benzo[g,h,i]perylene	ND		70	10
86-74-8	Carbazole	ND	ILW	170	9.6
90-12-0	1-Methylnaphthalene	ND		35	5.8
205-99-2	Benzo[b]fluoranthene	ND		29	5.8
207-08-9	Benzo[k]fluoranthene	ND		70	16
108-60-1	bis(chloroisopropyl) ether	ND		230	16

ILW

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FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87658-1  
SDG No.: \_\_\_\_\_  
Client Sample ID: 19070206 Lab Sample ID: 580-87658-2  
Matrix: Solid Lab File ID: 0722A011.D  
Analysis Method: 8270D Date Collected: 07/10/2019 15:45  
Extract. Method: 3550B Date Extracted: 07/19/2019 10:03  
Sample wt/vol: 10.304(g) Date Analyzed: 07/22/2019 14:11  
Con. Extract Vol.: 10 (mL) Dilution Factor: 1  
Injection Volume: 1 (uL) Level: (low/med) Low  
% Moisture: 16.7 GPC Cleanup: (Y/N) N  
Analysis Batch No.: 306240 Units: ug/Kg

CAS NO.	SURROGATE	%REC	Q	LIMITS
367-12-4	2-Fluorophenol (Surr)	85		60-125
4165-62-2	Phenol-d5 (Surr)	95		59-120
4165-60-0	Nitrobenzene-d5 (Surr)	85		62-120
321-60-8	2-Fluorobiphenyl	80		57-120
118-79-6	2,4,6-Tribromophenol (Surr)	68		52-125
1718-51-0	Terphenyl-d14 (Surr)	118		58-120

*MW* 8-14-19



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### MEMORANDUM

DATE: August 14, 2019

TO: Seth Wing, START-IV Project Manager, E & E, Seattle, WA

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington

SUBJ: **Organic Data Quality Assurance Review, May Creek Removal Action Site, Renton, Washington**

REF: TO: TO-68HE0718F0470      PAN: 1004530.0470.001.01

The data quality assurance review of 2 soil samples collected from the May Creek Removal Action site located in Renton, Washington, has been completed. Analyses for Chlorinated Pesticides (EPA Method 8081) and Polychlorinated Biphenyls (PCBs - EPA Method 8082) were performed by Test America, Inc., Tacoma, Washington. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Manual Process (S2B/4VM).

The samples were numbered: 19070205      19070206

#### Data Qualifications:

**1. Sample Holding Times: Acceptable.**

The samples were maintained at 0°C to 6°C. The samples were collected on July 10, 2019, extracted on July 24, 2019, and were analyzed by August 6, 2019, therefore meeting QC criteria of less than 14 days between collection and soil sample extraction and less than 40 days between extraction and analysis. There are no holding time limits for Method 8082 PCBs.

**2. Instrument Performance: Acceptable.**

The surrogate retention time percent difference between the initial calibration standards and the remaining standards and samples was within QC limits.

**3. Initial and Continuing Calibration: Satisfactory.**

All initial calibration relative standard deviations (RSDs) were within QC limits. All continuing calibration % differences (% D) were within QC limits except one high PCB SMC result; no actions were taken based on this outlier as this analyte was not detected in any samples.

**4. Blanks: Satisfactory.**

A method blank was prepared at the required frequency of every time samples were extracted for each matrix and for each concentration level, or every 20 samples, whichever is greater, and for each analytical system. No target analytes were detected in the laboratory blanks except Endosulfan I in a continuing calibration blank; no actions were taken as this analyte was not detected in any samples.

**5. System Monitoring Compounds (SMCs): Satisfactory.**

All recoveries of the SMCs were within QC limits except one high outlier in the PCB method blank. No actions were taken as no analytes were detected in the method blank.

**6. Blank Spike (BS) Analyses: Acceptable.**

BS and BS duplicate recoveries were within QC limits.

**7. Duplicates: Acceptable.**

Relative Percent Differences (RPDs) of all spiked analytes were within the required control limits.

**8. Compound Identification: Acceptable.**

All positive sample results were dual-column confirmed with differences between the columns less than 40%.

**9. Target Compound Quantitation and Quantitation Limits: Acceptable.**

Sample results and quantitation limits were correctly calculated.

**10. Laboratory Contact**

No laboratory contact was required.

**11. Overall Assessment**

A total of 56 results were validated in this data memorandum. No sample results were qualified as estimated quantities (J) based on duplicate precision outliers, holding time outliers, spike accuracy outliers, incorrect sample containers, or sample temperature outliers. No sample results were rejected (R).

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result. This updated memorandum provides additional results that weren't provided in the original submittal.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the analytical method(s), the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, and/or the Office of Emergency and Remedial Response Publication "National Functional Guidelines for Superfund Organic Methods Data Review, January 2017". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

H - The sample result is biased high.

J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

K - The bias of the sample is not known.

L - The sample result is biased low.

- Q - Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.
- R - The data is rejected and unusable. The analyte may or may not be present in the sample.
- U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.

FORM I  
PESTICIDES ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87658-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070205

Lab Sample ID: 580-87658-1

Matrix: Solid

Lab File ID: 45G080619a029.D

Analysis Method: 8081B

Date Collected: 07/10/2019 15:15

Extraction Method: 3546

Date Extracted: 07/24/2019 10:07

Sample wt/vol: 10.076(g)

Date Analyzed: 08/06/2019 15:19

Con. Extract Vol.: 10(mL)

Dilution Factor: 1

Injection Volume: 1(uL)

GC Column: ZB-CLPest-2 ID: 0.25(mm)

% Moisture: 18.3

GPC Cleanup: (Y/N) N

Analysis Batch No.: 307557

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
309-00-2	Aldrin	ND		3.6	0.46
319-84-6	alpha-BHC	ND		2.4	0.19
319-85-7	beta-BHC	ND		6.1	0.30
319-86-8	delta-BHC	ND		3.6	0.34
58-89-9	gamma-BHC (Lindane)	ND		2.4	0.91
72-54-8	4,4'-DDD	ND		2.4	0.28
72-55-9	4,4'-DDE	ND		2.4	0.45
50-29-3	4,4'-DDT	ND		2.4	0.45
60-57-1	Dieldrin	ND		2.4	0.42
959-98-8	Endosulfan I	ND		2.4	0.41
33213-65-9	Endosulfan II	ND		2.4	0.32
1031-07-8	Endosulfan sulfate	ND		2.4	0.34
72-20-8	Endrin	ND		2.4	0.57
7421-93-4	Endrin aldehyde	ND		24	5.8
76-44-8	Heptachlor	ND		3.6	0.23
1024-57-3	Heptachlor epoxide	ND		3.6	0.36
72-43-5	Methoxychlor	ND		12	0.45
53494-70-5	Endrin ketone	ND		2.4	0.51
8001-35-2	Toxaphene	ND		120	30
5103-71-9	cis-Chlordane	ND		2.4	0.91
5103-74-2	trans-Chlordane	ND		3.6	0.39

CAS NO.	SURROGATE	%REC	Q	LIMITS
877-09-8	Tetrachloro-m-xylene	64		50-123
2051-24-3	DCB Decachlorobiphenyl	85		36-136

*mw 8/4/19*

FORM I  
PESTICIDES ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87658-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070206

Lab Sample ID: 580-87658-2

Matrix: Solid

Lab File ID: 45G080619a030.D

Analysis Method: 8081B

Date Collected: 07/10/2019 15:45

Extraction Method: 3546

Date Extracted: 07/24/2019 10:07

Sample wt/vol: 10.860(g)

Date Analyzed: 08/06/2019 15:37

Con. Extract Vol.: 10(mL)

Dilution Factor: 1

Injection Volume: 1(uL)

GC Column: ZB-CLPest-2 ID: 0.25(mm)

% Moisture: 16.7

GPC Cleanup: (Y/N) N

Analysis Batch No.: 307557

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
309-00-2	Aldrin	ND		3.3	0.42
319-84-6	alpha-BHC	ND		2.2	0.18
319-85-7	beta-BHC	ND		5.5	0.28
319-86-8	delta-BHC	ND		3.3	0.31
58-89-9	gamma-BHC (Lindane)	ND		2.2	0.83
72-54-8	4,4'-DDD	ND		2.2	0.25
72-55-9	4,4'-DDE	ND		2.2	0.41
50-29-3	4,4'-DDT	ND		2.2	0.41
60-57-1	Dieldrin	ND		2.2	0.39
959-98-8	Endosulfan I	ND		2.2	0.38
33213-65-9	Endosulfan II	ND		2.2	0.29
1031-07-8	Endosulfan sulfate	ND		2.2	0.31
72-20-8	Endrin	ND		2.2	0.52
7421-93-4	Endrin aldehyde	ND		2.2	5.3
76-44-8	Heptachlor	ND		3.3	0.21
1024-57-3	Heptachlor epoxide	ND		3.3	0.33
72-43-5	Methoxychlor	ND		11	0.41
53494-70-5	Endrin ketone	ND		2.2	0.46
8001-35-2	Toxaphene	ND		110	28
5103-71-9	cis-Chlordane	ND		2.2	0.83
5103-74-2	trans-Chlordane	ND		3.3	0.35

CAS NO.	SURROGATE	%REC	Q	LIMITS
877-09-8	Tetrachloro-m-xylene	65		50-123
2051-24-3	DCB Decachlorobiphenyl	87		36-136

*mw 8-14-19*

FORM I  
PCBS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87658-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070205 Lab Sample ID: 580-87658-1  
 Matrix: Solid Lab File ID: 35G080519a024.d  
 Analysis Method: 8082A Date Collected: 07/10/2019 15:15  
 Extraction Method: 3546 Date Extracted: 07/24/2019 10:07  
 Sample wt/vol: 10.076(g) Date Analyzed: 08/05/2019 19:21  
 Con. Extract Vol.: 10(mL) Dilution Factor: 1  
 Injection Volume: 1(uL) GC Column: ZB-CLPest-1 ID: 0.25(mm)  
 % Moisture: 18.3 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 307509 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
12674-11-2	PCB-1016	ND		0.024	0.0090
11104-28-2	PCB-1221	ND		0.024	0.0051
11141-16-5	PCB-1232	ND		0.024	0.0059
53469-21-9	PCB-1242	ND		0.024	0.0042
12672-29-6	PCB-1248	ND		0.024	0.0035
11097-69-1	PCB-1254	ND		0.024	0.0045
11096-82-5	PCB-1260	ND		0.024	0.0090

CAS NO.	SURROGATE	%REC	Q	LIMITS
2051-24-3	DCB Decachlorobiphenyl	76		39-142
877-09-8	Tetrachloro-m-xylene	88		35-129

*MW 8/14/19*

FORM I  
PCBS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>Eurofins TestAmerica, Seattle</u>	Job No.: <u>580-87658-1</u>
SDG No.: _____	
Client Sample ID: <u>19070206</u>	Lab Sample ID: <u>580-87658-2</u>
Matrix: <u>Solid</u>	Lab File ID: <u>35G080519a025.d</u>
Analysis Method: <u>8082A</u>	Date Collected: <u>07/10/2019 15:45</u>
Extraction Method: <u>3546</u>	Date Extracted: <u>07/24/2019 10:07</u>
Sample wt/vol: <u>10.860(g)</u>	Date Analyzed: <u>08/05/2019 19:38</u>
Con. Extract Vol.: <u>10 (mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>1 (uL)</u>	GC Column: <u>ZB-CLPest-1</u> ID: <u>0.25 (mm)</u>
% Moisture: <u>16.7</u>	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>307509</u>	Units: <u>mg/Kg</u>

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
12674-11-2	PCB-1016	ND		0.022	0.0082
11104-28-2	PCB-1221	ND		0.022	0.0046
11141-16-5	PCB-1232	ND		0.022	0.0054
53469-21-9	PCB-1242	ND		0.022	0.0039
12672-29-6	PCB-1248	ND		0.022	0.0032
11097-69-1	PCB-1254	ND		0.022	0.0041
11096-82-5	PCB-1260	ND		0.022	0.0082

CAS NO.	SURROGATE	%REC	Q	LIMITS
2051-24-3	DCB Decachlorobiphenyl	82		39-142
877-09-8	Tetrachloro-m-xylene	83		35-129

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### MEMORANDUM

DATE: August 14, 2019

TO: Seth Wing, START-IV Project Manager, E & E, Seattle, WA

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington 

SUBJ: **Organic Data Quality Assurance Review, May Creek Removal Action Site, Renton, Washington**

REF: TO: TO-68HE0718F0470 PAN: 1004530.0470.001.01

The data quality assurance review of 3 soil samples collected from the May Creek Removal Action site in Renton, Washington, has been completed. Volatile Organic Compound (VOC) analysis (EPA Method 8260) was performed by Test America, Inc., Tacoma, Washington. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Manual Process (S2B/4VM).

The samples were numbered: 19070205 19070206 19070604

#### Data Qualifications:

**1. Sample Holding Times: Acceptable.**

The samples were maintained within the QC limits of  $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ . The samples were collected on July 10 and 11, 2019, were received at the laboratory within 48 hours of collection, and were analyzed by July 24, 2019, therefore meeting QC criteria of less than 14 days between collection and analysis for preser samples.

**2. Tuning: Acceptable.**

Tuning was performed at the beginning of each 12-hour analysis sequence. All results were within QC limits.

**3. Initial Calibration: Acceptable.**

All average Relative Response Factors (RRFs) were within the QC limits. All Relative Standard Deviations (RSDs) and/or correlation coefficients were within the QC limits.

**4. Continuing Calibration: Satisfactory.**

All RRFs were within the QC limits. Applicable percent differences were within QC limits except some high recovery outliers; no actions were taken as these analytes were not detected in any samples.

**5. Blanks: Satisfactory.**

A method blank was analyzed for each 20 sample batch per matrix. There were no detections in any method blank. There were no detections in the trip blank except chloroform; no actions were taken as chloroform was not detected in the field samples.

**6. System Monitoring Compounds (SMCs): Acceptable.**

All SMC recoveries were within QC limits.

**7. Blank Spike (BS)/BS Duplicate (BSD) Analysis: Acceptable.**

BS and BSD analyses were performed per SDG or per matrix per concentration level, whichever was more frequent. All recoveries were within QC limits.

**8. Spike Duplicate Analysis: Acceptable.**

Spike duplicate analyses were performed per SDG or per matrix per concentration level, whichever was more frequent. All results were within QC limits.

**9. Internal Standards: Acceptable.**

All internal standards were within  $\pm 30$  seconds of the continuing calibration internal standard retention times. All area counts were within 50 % to 200 % of the continuing calibration area counts.

**10. Overall Assessment of Data for Use**

Samples 19070205 and 19050206 had sample weights higher than the method requirements; associated results were qualified as estimated quantities with an unknown bias (JK or UJK).

A total of 180 results were validated in this data memorandum. No sample results were qualified as estimated quantities (J) based on duplicate precision outliers, spike accuracy outliers, holding time outliers, incorrect sample containers, or sample temperature outliers. No sample results were rejected (R).

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the analytical method(s), the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, and/or the Office of Emergency and Remedial Response Publication "National Functional Guidelines for Superfund Organic Methods Data Review, January 2017". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

**Data Qualifiers and Definitions**

H - The sample result is biased high.

J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

K - The bias of the sample is not known.

L - The sample result is biased low.

N - The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification".

NJ - The analyte has been "tentatively identified" or "presumptively" as present and the associated numerical value is the estimated concentration in the sample.

- Q - Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.
- R - The data is rejected and unusable. The analyte may or may not be present in the sample.
- U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87658-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070205

Lab Sample ID: 580-87658-1

Matrix: Solid

Lab File ID: 072319\_0050.D

Analysis Method: 8260C

Date Collected: 07/10/2019 15:15

Sample wt/vol: 7.188(g)

Date Analyzed: 07/24/2019 06:17

Soil Aliquot Vol: \_\_\_\_\_

Dilution Factor: 1

Soil Extract Vol.: \_\_\_\_\_

GC Column: DB-VRX ID: 0.25 (mm)

% Moisture: 18.3

Level: (low/med) Low

Analysis Batch No.: 306461

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-71-8	Dichlorodifluoromethane	ND		1.7	0.42
74-87-3	Chloromethane	ND		4.3	0.79
75-01-4	Vinyl chloride	ND		1.7	0.26
74-83-9	Bromomethane	ND		0.85	0.18
75-00-3	Chloroethane	ND		8.5	1.4
75-69-4	Trichlorofluoromethane	ND		1.7	0.26
75-35-4	1,1-Dichloroethene	ND		4.3	0.94
75-09-2	Methylene Chloride	ND		34	8.4
156-60-5	trans-1,2-Dichloroethene	ND		1.7	0.34
75-34-3	1,1-Dichloroethane	ND		0.85	0.16
594-20-7	2,2-Dichloropropane	ND		4.3	0.77
156-59-2	cis-1,2-Dichloroethene	ND		2.6	0.51
74-97-5	Bromochloromethane	ND		1.7	0.21
67-66-3	Chloroform	ND		1.7	0.26
71-55-6	1,1,1-Trichloroethane	ND		1.7	0.26
56-23-5	Carbon tetrachloride	ND		1.7	0.26
563-58-6	1,1-Dichloropropene	ND		1.7	0.26
71-43-2	Benzene	ND		1.7	0.33
107-06-2	1,2-Dichloroethane	ND		0.85	0.17
79-01-6	Trichloroethene	ND		1.7	0.26
78-87-5	1,2-Dichloropropane	ND		1.7	0.34
74-95-3	Dibromomethane	ND		0.85	0.14
75-27-4	Bromodichloromethane	ND		0.85	0.15
10061-01-5	cis-1,3-Dichloropropene	ND		0.85	0.17
108-88-3	Toluene	ND		8.5	1.1
10061-02-6	trans-1,3-Dichloropropene	ND		8.5	1.2
79-00-5	1,1,2-Trichloroethane	ND		1.7	0.21
127-18-4	Tetrachloroethene	ND		1.7	0.34
142-28-9	1,3-Dichloropropane	ND		1.7	0.20
124-48-1	Dibromochloromethane	ND		1.3	0.23
106-93-4	1,2-Dibromoethane	ND		0.85	0.17
108-90-7	Chlorobenzene	ND		1.7	0.21
100-41-4	Ethylbenzene	ND		1.7	0.35
630-20-6	1,1,1,2-Tetrachloroethane	ND		2.6	0.50
79-34-5	1,1,2,2-Tetrachloroethane	ND		3.4	0.77
179601-23-1	m-Xylene & p-Xylene	ND	mm	8.5	1.4

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87658-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070205 Lab Sample ID: 580-87658-1  
 Matrix: Solid Lab File ID: 072319\_0050.D  
 Analysis Method: 8260C Date Collected: 07/10/2019 15:15  
 Sample wt/vol: 7.188(g) Date Analyzed: 07/24/2019 06:17  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: DB-VRX ID: 0.25 (mm)  
 % Moisture: 18.3 Level: (low/med) Low  
 Analysis Batch No.: 306461 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
95-47-6	o-Xylene	ND		4.3	0.78
100-42-5	Styrene	ND		2.6	0.63
75-25-2	Bromoform	ND	*	4.3	0.71
98-82-8	Isopropylbenzene	ND		1.7	0.39
108-86-1	Bromobenzene	ND	*	8.5	0.85
103-65-1	N-Propylbenzene	ND		4.3	0.65
96-18-4	1,2,3-Trichloropropane	ND	*	4.3	0.85
95-49-8	2-Chlorotoluene	ND		4.3	0.79
108-67-8	1,3,5-Trimethylbenzene	ND		4.3	0.69
106-43-4	4-Chlorotoluene	ND	*	4.3	0.85
98-06-6	t-Butylbenzene	ND		2.6	0.56
95-63-6	1,2,4-Trimethylbenzene	ND		4.3	1.0
135-98-8	sec-Butylbenzene	ND		2.6	0.57
541-73-1	1,3-Dichlorobenzene	ND		4.3	0.94
99-87-6	4-Isopropyltoluene	ND		1.7	0.34
106-46-7	1,4-Dichlorobenzene	ND	*	4.3	0.83
104-51-8	n-Butylbenzene	ND		2.6	0.54
95-50-1	1,2-Dichlorobenzene	ND		8.5	1.1
96-12-8	1,2-Dibromo-3-Chloropropane	ND		8.5	1.4
120-82-1	1,2,4-Trichlorobenzene	ND	mu	1.7	0.36
87-61-6	1,2,3-Trichlorobenzene	ND		2.6	0.51
87-68-3	Hexachlorobutadiene	ND		2.6	0.51
91-20-3	Naphthalene	ND		8.5	1.5
1634-04-4	Methyl tert-butyl ether	ND		1.7	0.26

CAS NO.	SURROGATE	%REC	Q	LIMITS
2037-26-5	Toluene-d8 (Surr)	101		80-120
460-00-4	4-Bromofluorobenzene (Surr)	102		80-120
1868-53-7	Dibromofluoromethane (Surr)	102		80-120
98-08-8	Trifluorotoluene (Surr)	97		80-120
17060-07-0	1,2-Dichloroethane-d4 (Surr)	112		80-121

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87658-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070206

Lab Sample ID: 580-87658-2

Matrix: Solid

Lab File ID: 072319\_0051.D

Analysis Method: 8260C

Date Collected: 07/10/2019 15:45

Sample wt/vol: 7.702(g)

Date Analyzed: 07/24/2019 06:42

Soil Aliquot Vol: \_\_\_\_\_

Dilution Factor: 1

Soil Extract Vol.: \_\_\_\_\_

GC Column: DB-VRX ID: 0.25 (mm)

% Moisture: 16.7

Level: (low/med) Low

Analysis Batch No.: 306461

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-71-8	Dichlorodifluoromethane	ND		1.6	0.38
74-87-3	Chloromethane	ND		3.9	0.72
75-01-4	Vinyl chloride	ND		1.6	0.23
74-83-9	Bromomethane	ND		0.78	0.16
75-00-3	Chloroethane	ND		7.8	1.2
75-69-4	Trichlorofluoromethane	ND		1.6	0.23
75-35-4	1,1-Dichloroethene	ND		3.9	0.86
75-09-2	Methylene Chloride	ND		31	7.7
156-60-5	trans-1,2-Dichloroethene	ND		1.6	0.31
75-34-3	1,1-Dichloroethane	ND		0.78	0.15
594-20-7	2,2-Dichloropropane	ND		3.9	0.70
156-59-2	cis-1,2-Dichloroethene	ND		2.3	0.47
74-97-5	Bromochloromethane	ND		1.6	0.19
67-66-3	Chloroform	ND		1.6	0.23
71-55-6	1,1,1-Trichloroethane	ND		1.6	0.23
56-23-5	Carbon tetrachloride	ND		1.6	0.23
563-58-6	1,1-Dichloropropene	ND		1.6	0.23
71-43-2	Benzene	ND		1.6	0.30
107-06-2	1,2-Dichloroethane	ND		0.78	0.16
79-01-6	Trichloroethene	ND		1.6	0.23
78-87-5	1,2-Dichloropropane	ND		1.6	0.31
74-95-3	Dibromomethane	ND		0.78	0.13
75-27-4	Bromodichloromethane	ND		0.78	0.14
10061-01-5	cis-1,3-Dichloropropene	ND		0.78	0.16
108-88-3	Toluene	ND		7.8	1.0
10061-02-6	trans-1,3-Dichloropropene	ND		7.8	1.1
79-00-5	1,1,2-Trichloroethane	ND	*	1.6	0.19
127-18-4	Tetrachloroethene	ND	*	1.6	0.31
142-28-9	1,3-Dichloropropane	ND	*	1.6	0.18
124-48-1	Dibromochloromethane	ND	*	1.2	0.21
106-93-4	1,2-Dibromoethane	ND	*	0.78	0.16
108-90-7	Chlorobenzene	ND		1.6	0.19
100-41-4	Ethylbenzene	ND		1.6	0.32
630-20-6	1,1,1,2-Tetrachloroethane	ND		2.3	0.46
79-34-5	1,1,2,2-Tetrachloroethane	ND		3.1	0.70
179601-23-1	m-Xylene & p-Xylene	ND		7.8	1.3

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87658-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070206 Lab Sample ID: 580-87658-2  
 Matrix: Solid Lab File ID: 072319\_0051.D  
 Analysis Method: 8260C Date Collected: 07/10/2019 15:45  
 Sample wt/vol: 7.702(g) Date Analyzed: 07/24/2019 06:42  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: DB-VRX ID: 0.25(mm)  
 % Moisture: 16.7 Level: (low/med) Low  
 Analysis Batch No.: 306461 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
95-47-6	o-Xylene	ND		3.9	0.72
100-42-5	Styrene	ND		2.3	0.58
75-25-2	Bromoform	ND		3.9	0.65
98-82-8	Isopropylbenzene	ND		1.6	0.36
108-86-1	Bromobenzene	ND		7.8	0.78
103-65-1	N-Propylbenzene	ND		3.9	0.59
96-18-4	1,2,3-Trichloropropane	ND		3.9	0.78
95-49-8	2-Chlorotoluene	ND		3.9	0.72
108-67-8	1,3,5-Trimethylbenzene	ND		3.9	0.63
106-43-4	4-Chlorotoluene	ND		3.9	0.78
98-06-6	t-Butylbenzene	ND		2.3	0.51
95-63-6	1,2,4-Trimethylbenzene	ND		3.9	0.94
135-98-8	sec-Butylbenzene	ND		2.3	0.52
541-73-1	1,3-Dichlorobenzene	MMNA	MMU	3.9	0.86
99-87-6	4-Isopropyltoluene	0.75	J Q	1.6	0.31
106-46-7	1,4-Dichlorobenzene	ND		3.9	0.76
104-51-8	n-Butylbenzene	ND		2.3	0.49
95-50-1	1,2-Dichlorobenzene	ND		7.8	1.0
96-12-8	1,2-Dibromo-3-Chloropropane	ND	MMU	7.8	1.2
120-82-1	1,2,4-Trichlorobenzene	ND		1.6	0.33
87-61-6	1,2,3-Trichlorobenzene	ND		2.3	0.47
87-68-3	Hexachlorobutadiene	ND		2.3	0.47
91-20-3	Naphthalene	ND		7.8	1.4
1634-04-4	Methyl tert-butyl ether	ND		1.6	0.23

CAS NO.	SURROGATE	%REC	Q	LIMITS
2037-26-5	Toluene-d8 (Surr)	97		80-120
460-00-4	4-Bromofluorobenzene (Surr)	103		80-120
1868-53-7	Dibromofluoromethane (Surr)	102		80-120
98-08-8	Trifluorotoluene (Surr)	97		80-120
17060-07-0	1,2-Dichloroethane-d4 (Surr)	113		80-121

JW 8/4/19

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87658-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070604 Lab Sample ID: 580-87658-3  
 Matrix: Solid Lab File ID: 072319\_0052.D  
 Analysis Method: 8260C Date Collected: 07/11/2019 12:10  
 Sample wt/vol: 5(g) Date Analyzed: 07/24/2019 07:06  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: DB-VRX ID: 0.25(mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 306461 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-71-8	Dichlorodifluoromethane	ND		2.0	0.49
74-87-3	Chloromethane	ND		5.0	0.93
75-01-4	Vinyl chloride	ND		2.0	0.30
74-83-9	Bromomethane	ND		1.0	0.21
75-00-3	Chloroethane	ND		10	1.6
75-69-4	Trichlorofluoromethane	ND		2.0	0.30
75-35-4	1,1-Dichloroethene	ND		5.0	1.1
75-09-2	Methylene Chloride	ND		40	9.9
156-60-5	trans-1,2-Dichloroethene	ND		2.0	0.40
75-34-3	1,1-Dichloroethane	ND		1.0	0.19
594-20-7	2,2-Dichloropropane	ND		5.0	0.90
156-59-2	cis-1,2-Dichloroethene	ND		3.0	0.60
74-97-5	Bromochloromethane	ND		2.0	0.25
67-66-3	Chloroform	0.74	J	2.0	0.30
71-55-6	1,1,1-Trichloroethane	ND		2.0	0.30
56-23-5	Carbon tetrachloride	ND		2.0	0.30
563-58-6	1,1-Dichloropropene	ND		2.0	0.30
71-43-2	Benzene	ND		2.0	0.39
107-06-2	1,2-Dichloroethane	ND		1.0	0.20
79-01-6	Trichloroethene	ND		2.0	0.30
78-87-5	1,2-Dichloropropane	ND		2.0	0.40
74-95-3	Dibromomethane	ND		1.0	0.17
75-27-4	Bromodichloromethane	ND		1.0	0.18
10061-01-5	cis-1,3-Dichloropropene	ND		1.0	0.20
108-88-3	Toluene	ND		10	1.3
10061-02-6	trans-1,3-Dichloropropene	ND		10	1.4
79-00-5	1,1,2-Trichloroethane	ND		2.0	0.25
127-18-4	Tetrachloroethene	ND		2.0	0.40
142-28-9	1,3-Dichloropropane	ND		2.0	0.23
124-48-1	Dibromochloromethane	ND		1.5	0.27
106-93-4	1,2-Dibromoethane	ND		1.0	0.20
108-90-7	Chlorobenzene	ND		2.0	0.25
100-41-4	Ethylbenzene	ND		2.0	0.41
630-20-6	1,1,1,2-Tetrachloroethane	ND		3.0	0.59
79-34-5	1,1,2,2-Tetrachloroethane	ND		4.0	0.90
179601-23-1	m-Xylene & p-Xylene	ND		10	1.7



FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87658-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070604 Lab Sample ID: 580-87658-3  
 Matrix: Solid Lab File ID: 072319\_0052.D  
 Analysis Method: 8260C Date Collected: 07/11/2019 12:10  
 Sample wt/vol: 5(g) Date Analyzed: 07/24/2019 07:06  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: DB-VRX ID: 0.25 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 306461 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
95-47-6	o-Xylene	ND		5.0	0.92
100-42-5	Styrene	ND		3.0	0.74
75-25-2	Bromoform	ND		5.0	0.84
98-82-8	Isopropylbenzene	ND		2.0	0.46
108-86-1	Bromobenzene	ND		10	1.0
103-65-1	N-Propylbenzene	ND		5.0	0.76
96-18-4	1,2,3-Trichloropropane	ND		5.0	1.0
95-49-8	2-Chlorotoluene	ND		5.0	0.93
108-67-8	1,3,5-Trimethylbenzene	ND		5.0	0.81
106-43-4	4-Chlorotoluene	ND		5.0	1.0
98-06-6	t-Butylbenzene	ND		3.0	0.66
95-63-6	1,2,4-Trimethylbenzene	ND		5.0	1.2
135-98-8	sec-Butylbenzene	ND		3.0	0.67
541-73-1	1,3-Dichlorobenzene	ND		5.0	1.1
99-87-6	4-Isopropyltoluene	ND		2.0	0.40
106-46-7	1,4-Dichlorobenzene	ND		5.0	0.98
104-51-8	n-Butylbenzene	ND		3.0	0.63
95-50-1	1,2-Dichlorobenzene	ND		10	1.3
96-12-8	1,2-Dibromo-3-Chloropropane	ND		10	1.6
120-82-1	1,2,4-Trichlorobenzene	ND		2.0	0.42
87-61-6	1,2,3-Trichlorobenzene	ND		3.0	0.60
87-68-3	Hexachlorobutadiene	ND		3.0	0.60
91-20-3	Naphthalene	ND		10	1.8
1634-04-4	Methyl tert-butyl ether	ND		2.0	0.30

CAS NO.	SURROGATE	%REC	Q	LIMITS
2037-26-5	Toluene-d8 (Surr)	100		80-120
460-00-4	4-Bromofluorobenzene (Surr)	101		80-120
1868-53-7	Dibromofluoromethane (Surr)	103		80-120
98-08-8	Trifluorotoluene (Surr)	96		80-120
17060-07-0	1,2-Dichloroethane-d4 (Surr)	101		80-121

*Handwritten signature/initials*



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### MEMORANDUM

DATE: August 19, 2019

TO: Seth Wing, START-IV Project Manager, E & E, Seattle, WA

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington MW

SUBJ: **Organic Data Quality Assurance Review, May Creek Removal Action Site, Renton, Washington**

REF: TO: TO-68HE0718F0470 PAN: 1004530.0470.001.01

The data quality assurance review of five soil samples collected from the May Creek Removal Action site located in Renton, Washington, has been completed. Analysis for Extended Diesel Range Total Petroleum Hydrocarbons (Ecology Method NWTPH-Dx) was performed by Test America, Inc., Spokane, Washington. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Manual Process (S2B/4VM).

The samples were numbered:

19070141      19070142      19070143      19070144      19070145

#### Data Qualifications:

##### 1. **Sample Holding Times: Acceptable.**

The samples were maintained at  $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ . The samples were collected on July 15, 2019, extracted on July 18, 2019, and analyzed by July 18, 2019, therefore meeting QC criteria of less than 14 days between collection and extraction for soil samples and less than 40 days between extraction and analysis.

##### 2. **Initial Calibration: Acceptable.**

Calculations were verified as correct. All relative percent differences (RPDs) were within the laboratory control limits.

##### 3. **Continuing Calibration: Acceptable.**

Calculations were verified as correct. All percent differences (%Ds) were within the laboratory control limits.

##### 4. **Blanks: Acceptable.**

A method blank was analyzed for each extraction batch for each matrix and analysis system. Diesel- and motor oil-range TPHs were not detected in the method blank.

**5. System Monitoring Compounds (SMC): Acceptable.**

All recoveries of the SMCs were greater than 10% and within QC limits.

**6. Blank Spike (BS): Satisfactory.**

BS recoveries were within QC limits.

**7. Quantitation and Quantitation Limits: Acceptable.**

Sample concentrations were correctly calculated.

**8. Laboratory Contact: Not Required.**

No laboratory contact was required.

**9. Overall Assessment of Data for Use**

A total of 10 results were validated in this data memorandum. No sample results were qualified as estimated quantities (J) based on spike accuracy outliers, holding time outliers, incorrect sample containers, or sample temperature outliers. No sample results were rejected (R).

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the analytical method(s), the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, and/or the Office of Emergency and Remedial Response Publication "National Functional Guidelines for Superfund Organic Methods Data Review, January 2017". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

H - The sample result is biased high.

J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

K - The bias of the sample is not known.

L - The sample result is biased low.

Q - Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.

R - The data is rejected and unusable. The analyte may or may not be present in the sample.

U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.

UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.

FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Spokane Job No.: 580-87663-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070141 Lab Sample ID: 580-87663-1  
 Matrix: Solid Lab File ID: 590-0005735-005.D  
 Analysis Method: NWTPH-Dx Date Collected: 07/15/2019 09:50  
 Extraction Method: 3550C Date Extracted: 07/18/2019 08:05  
 Sample wt/vol: 15.44(g) Date Analyzed: 07/18/2019 10:48  
 Con. Extract Vol.: 5(mL) Dilution Factor: 1  
 Injection Volume: 2(uL) GC Column: ZB-1HT B ID: 0.25 (mm)  
 % Moisture: 9.2 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 23078 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00258	Diesel Range Organics (DRO) (C10-C25)	33		11	4.5
STL00383	Residual Range Organics (RRO) (C25-C36)	180		27	5.4

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	110		50-150
93952-07-9	n-Triacontane-d62	119		50-150

*mw 8/19/19*

FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Spokane Job No.: 580-87663-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070142 Lab Sample ID: 580-87663-2  
 Matrix: Solid Lab File ID: 590-0005735-007.D  
 Analysis Method: NWTPH-Dx Date Collected: 07/15/2019 10:04  
 Extraction Method: 3550C Date Extracted: 07/18/2019 08:05  
 Sample wt/vol: 15.74(g) Date Analyzed: 07/18/2019 11:29  
 Con. Extract Vol.: 5(mL) Dilution Factor: 1  
 Injection Volume: 2(uL) GC Column: ZB-1HT B ID: 0.25 (mm)  
 % Moisture: 9.9 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 23078 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00258	Diesel Range Organics (DRO) (C10-C25)	21		11	4.4
STL00383	Residual Range Organics (RRO) (C25-C36)	120		26	5.3

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	108		50-150
93952-07-9	n-Triacontane-d62	113		50-150

*mw 8/19*

FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Spokane Job No.: 580-87663-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070143 Lab Sample ID: 580-87663-3  
 Matrix: Solid Lab File ID: 590-0005735-008.D  
 Analysis Method: NWTPH-Dx Date Collected: 07/15/2019 10:10  
 Extraction Method: 3550C Date Extracted: 07/18/2019 08:05  
 Sample wt/vol: 15.00(g) Date Analyzed: 07/18/2019 11:50  
 Con. Extract Vol.: 5(mL) Dilution Factor: 1  
 Injection Volume: 2(uL) GC Column: ZB-1HT B ID: 0.25 (mm)  
 % Moisture: 10.4 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 23078 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00258	Diesel Range Organics (DRO) (C10-C25)	69		11	4.7
STL00383	Residual Range Organics (RRO) (C25-C36)	380		28	5.6

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	102		50-150
93952-07-9	n-Triacontane-d62	118		50-150

*MW 8/19*

FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Spokane Job No.: 580-87663-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070144 Lab Sample ID: 580-87663-4  
 Matrix: Solid Lab File ID: 590-0005735-009.D  
 Analysis Method: NWTPH-Dx Date Collected: 07/15/2019 10:14  
 Extraction Method: 3550C Date Extracted: 07/18/2019 08:05  
 Sample wt/vol: 15.59(g) Date Analyzed: 07/18/2019 12:10  
 Con. Extract Vol.: 5(mL) Dilution Factor: 1  
 Injection Volume: 2(uL) GC Column: ZB-1HT B ID: 0.25 (mm)  
 % Moisture: 9.1 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 23078 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00258	Diesel Range Organics (DRO) (C10-C25)	64		11	4.4
STL00383	Residual Range Organics (RRO) (C25-C36)	310		26	5.3

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	112		50-150
93952-07-9	n-Triacontane-d62	129		50-150

*mw JHE*



FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Spokane Job No.: 580-87663-1  
SDG No.: \_\_\_\_\_  
Client Sample ID: 19070145 Lab Sample ID: 580-87663-5  
Matrix: Solid Lab File ID: 590-0005735-010.D  
Analysis Method: NWTPH-Dx Date Collected: 07/15/2019 10:17  
Extraction Method: 3550C Date Extracted: 07/18/2019 08:05  
Sample wt/vol: 15.38(g) Date Analyzed: 07/18/2019 12:30  
Con. Extract Vol.: 5(mL) Dilution Factor: 1  
Injection Volume: 2(uL) GC Column: ZB-1HT B ID: 0.25(mm)  
% Moisture: 9.4 GPC Cleanup: (Y/N) N  
Analysis Batch No.: 23078 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00258	Diesel Range Organics (DRO) (C10-C25)	290		11	4.5
STL00383	Residual Range Organics (RRO) (C25-C36)	940		27	5.4

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	114		50-150
93952-07-9	n-Triacontane-d62	123		50-150

*Mw JH*



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### MEMORANDUM

DATE: August 19, 2019

TO: Seth Wing, START-IV Project Manager, E & E, Seattle, WA

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington *MW*

SUBJ: **Inorganic Data Quality Assurance Review, May Creek Removal Action Site, Renton, Washington**

REF: TO: TO-68HE0718F0470 PAN: 1004530.0470.001.01

The data quality assurance review of 2 soil samples collected from the May Creek Removal Action site in Renton, Washington, has been completed. Cadmium and lead analyses (EPA Method 6010) were performed by Test America, Inc., Spokane, Washington. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Manual Process (S2B/4VM).

The samples were numbered: 19070203 19070204

#### Data Qualifications:

##### **1. Sample Holding Times: Acceptable.**

The samples were maintained at < 6°C (only applies to mercury). The samples were collected on July 15, 2019, and were analyzed by July 18, 2019, therefore meeting QC criteria of less than 6 months between collection, extraction, and analysis (28 days for mercury).

##### **2. Initial and Continuing Calibration: Acceptable.**

A minimum of one calibration standard and a blank were analyzed at the beginning of the ICP analysis sequence and after every 10 samples. No results were greater than 110% of the highest calibration standard. All ICP recoveries were within the QC limits. All AA recoveries were within QC limits and the initial calibration correlation coefficient was > 0.995.

##### **3. Blanks: Acceptable.**

A preparation blank was analyzed for each 20 samples or per matrix per concentration level. Blanks were analyzed after each Initial or Continuing Calibration Verification. There were no detections in any blanks that potentially affected sample results.

##### **4. ICP Interference Check Sample: Acceptable.**

An Interference Check Sample (ICS) was analyzed at the beginning of each sequence or at least twice every 8 hours, whichever was more frequent. All applicable ICS (solution AB) results were within QC limits of 80% - 120% recovery.

##### **5. Matrix Spike (MS) and MS Duplicate (MSD) Analyses: Acceptable.**

MS and MSD analyses were performed per SDG or per matrix per concentration level, whichever was more frequent. Spike recoveries were within the QC limits.

**7. Duplicate Analysis: Acceptable.**

A laboratory spike duplicate analysis was performed per SDG or per matrix per concentration level, whichever was more frequent. All spike duplicate results were within QC limits.

**8. Laboratory Control Sample Analysis: Acceptable.**

A Laboratory Control Sample (LCS) was analyzed per SDG per matrix. All LCS results were within the established control limits.

**9. Overall Assessment of Data for Use**

A total of 10 results were validated in this data memorandum. No sample results were qualified as estimated quantities (J) based on duplicate precision outliers, spike accuracy outliers, holding time outliers, incorrect sample containers, sample temperature outliers, or serial dilution outliers. No sample results were rejected (R).

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the analytical method(s), the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, and/or the Office of Emergency and Remedial Response Publication "National Functional Guidelines for Superfund Inorganic Methods Data Review, January 2017". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

- H - The sample result is biased high.
- J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
- K - The bias of the sample is not known.
- L - The sample result is biased low.
- Q - Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.
- R - The data is rejected and unusable. The analyte may or may not be present in the sample.
- U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.

1A-IN  
INORGANIC ANALYSIS DATA SHEET  
METALS

Client Sample ID: 19070141

Lab Sample ID: 580-87663-1

Lab Name: Eurofins TestAmerica, Spokane

Job No.: 580-87663-1

SDG ID.:

Matrix: Solid

Date Sampled: 07/15/2019 09:50

Reporting Basis: DRY

Date Received: 07/15/2019 13:46

% Solids: 90.8

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-43-9	Cadmium	0.064	0.87	0.052	mg/Kg	JQ		1	6010C
7439-92-1	Lead	36	2.6	1.3	mg/Kg			1	6010C

MW 8/9/19

1A-IN  
INORGANIC ANALYSIS DATA SHEET  
METALS

Client Sample ID: 19070142

Lab Sample ID: 580-87663-2

Lab Name: Eurofins TestAmerica, Spokane

Job No.: 580-87663-1

SDG ID.:

Matrix: Solid

Date Sampled: 07/15/2019 10:04

Reporting Basis: DRY

Date Received: 07/15/2019 13:46

% Solids: 90.1

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-43-9	Cadmium	<del>ND</del> 0.92	0.92	0.054	mg/Kg			1	6010C
7439-92-1	Lead	26	2.8	1.3	mg/Kg			1	6010C

*MW 8/19/19*

1A-IN  
INORGANIC ANALYSIS DATA SHEET  
METALS

Client Sample ID: 19070143

Lab Sample ID: 580-87663-3

Lab Name: Eurofins TestAmerica, Spokane

Job No.: 580-87663-1

SDG ID.:

Matrix: Solid

Date Sampled: 07/15/2019 10:10

Reporting Basis: DRY

Date Received: 07/15/2019 13:46

% Solids: 89.6

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-43-9	Cadmium	0.086	0.88	0.052	mg/Kg	JQ		1	6010C
7439-92-1	Lead	79	2.6	1.3	mg/Kg			1	6010C

MW8/19-19

1A-IN  
INORGANIC ANALYSIS DATA SHEET  
METALS

Client Sample ID: 19070144

Lab Sample ID: 580-87663-4

Lab Name: Eurofins TestAmerica, Spokane

Job No.: 580-87663-1

SDG ID.:

Matrix: Solid

Date Sampled: 07/15/2019 10:14

Reporting Basis: DRY

Date Received: 07/15/2019 13:46

% Solids: 90.9

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-43-9	Cadmium	0.082	0.91	0.054	mg/Kg	J		1	6010C
7439-92-1	Lead	31	2.7	1.3	mg/Kg	Q		1	6010C

*mm 8/9/19*

1A-IN  
INORGANIC ANALYSIS DATA SHEET  
METALS

Client Sample ID: 19070145

Lab Sample ID: 580-87663-5

Lab Name: Eurofins TestAmerica, Spokane

Job No.: 580-87663-1

SDG ID.:

Matrix: Solid

Date Sampled: 07/15/2019 10:17

Reporting Basis: DRY

Date Received: 07/15/2019 13:46

% Solids: 90.6

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-43-9	Cadmium	0.096	0.91	0.053	mg/Kg	JQ		1	6010C
7439-92-1	Lead	79	2.7	1.3	mg/Kg			1	6010C

*mw 8/9/19*





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### MEMORANDUM

DATE: January 8, 2020

TO: Seth Wing, START-IV Project Manager, E & E, Seattle, WA

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington *MW*

SUBJ: **Inorganic Data Quality Assurance Review, May Creek Removal Action Site, Renton, Washington**

REF: TO: TO-68HE0718F0470      PAN: 1004530.0470.001.01

The data quality assurance review of 2 soil samples collected from the May Creek Removal Action site in Renton, Washington, has been completed. Target Analyte List (TAL) and Toxicity Characteristic Leaching Procedure (TCLP) metals analyses (EPA Methods 1311, 6010, and 7470) were performed by Test America, Inc., Tacoma, Washington. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Manual Process (S2B/4VM).

The samples were numbered: 19070146      19070147

#### Data Qualifications:

**1. Sample Holding Times: Acceptable.**

The samples were maintained at  $< 6^{\circ}\text{C}$  (only applies to mercury). The samples were collected on July 16, 2019, and were analyzed by July 19, 2019, therefore meeting QC criteria of less than 6 months between collection, extraction, and analysis (28 days for mercury).

**2. Initial and Continuing Calibration: Acceptable.**

A minimum of one calibration standard and a blank were analyzed at the beginning of the ICP analysis sequence and after every 10 samples. No results were greater than 110% of the highest calibration standard. All ICP recoveries were within the QC limits. All AA recoveries were within QC limits and the initial calibration correlation coefficient was  $> 0.995$ .

**3. Blanks: Satisfactory.**

A preparation blank was analyzed for each 20 samples or per matrix per concentration level. Blanks were analyzed after each Initial or Continuing Calibration Verification. There were no detections in any blanks that potentially affected sample results except lead in the TCLP blank; associated positive sample results less than the reporting limit were qualified as not detected (U).

**4. ICP Interference Check Sample: Acceptable.**

An Interference Check Sample (ICS) was analyzed at the beginning of each sequence or at least twice every 8 hours, whichever was more frequent. All applicable ICS (solution AB) results were within QC limits of 80% - 120% recovery.

**5. Duplicate Analysis: Acceptable.**

A laboratory spike duplicate analysis was performed per SDG or per matrix per concentration level, whichever was more frequent. All spike duplicate results were within QC limits.

**6. Laboratory Control Sample Analysis: Acceptable.**

A Laboratory Control Sample (LCS) was analyzed per SDG per matrix. All LCS results were within the established control limits.

**7. Overall Assessment of Data for Use**

This memo was updated in January 2020 to include silver results which were inadvertently omitted.

A total of 62 results were validated in this data memorandum. No sample results were qualified as estimated quantities (J) based on duplicate precision outliers, spike accuracy outliers, holding time outliers, incorrect sample containers, or sample temperature outliers. No sample results were rejected (R).

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the analytical method(s), the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, and/or the Office of Emergency and Remedial Response Publication "National Functional Guidelines for Superfund Inorganic Methods Data Review, January 2017". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

- H - The sample result is biased high.
- J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
- K - The bias of the sample is not known.
- L - The sample result is biased low.
- Q - Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.
- R - The data is rejected and unusable. The analyte may or may not be present in the sample.
- U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.

1A-IN  
INORGANIC ANALYSIS DATA SHEET  
METALS

Client Sample ID: 19070146

Lab Sample ID: 580-87733-1

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87733-1

SDG ID.:

Matrix: Solid

Date Sampled: 07/16/2019 17:52

Reporting Basis: DRY

Date Received: 07/17/2019 08:05

% Solids: 79.6

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7429-90-5	Aluminum	5300	66	8.8	mg/Kg			1	6010D
7440-36-0	Antimony	3.0	2.7	0.23	mg/Kg			1	6010D
7440-38-2	Arsenic	5.8	2.7	0.22	mg/Kg			1	6010D
7440-39-3	Barium	39	0.44	0.070	mg/Kg			1	6010D
7440-41-7	Beryllium	0.044	0.88	0.013	mg/Kg	J		1	6010D
7440-43-9	Cadmium	0.45	0.88	0.043	mg/Kg	J		1	6010D
7440-70-2	Calcium	5500	49	8.8	mg/Kg			1	6010D
7440-47-3	Chromium	15	1.1	0.19	mg/Kg			1	6010D
7440-48-4	Cobalt	3.9	0.88	0.022	mg/Kg			1	6010D
7440-50-8	Copper	21	2.2	0.35	mg/Kg			1	6010D
7439-89-6	Iron	7800	57	14	mg/Kg			1	6010D
7439-92-1	Lead	120	1.3	0.20	mg/Kg			1	6010D
7439-95-4	Magnesium	2400	49	7.0	mg/Kg			1	6010D
7439-96-5	Manganese	160	1.8	0.34	mg/Kg			1	6010D
7440-02-0	Nickel	13	0.88	0.091	mg/Kg			1	6010D
7440-09-7	Potassium	410	150	6.0	mg/Kg		Am	1	6010D
7782-49-2	Selenium	ND	4.4	0.35	mg/Kg			1	6010D
7440-22-4	Silver	ND	2.2	0.49	mg/Kg			1	6010D
7440-23-5	Sodium	180	88	17	mg/Kg			1	6010D
7440-28-0	Thallium	ND	4.4	0.37	mg/Kg			1	6010D
7440-62-2	Vanadium	19	1.8	0.23	mg/Kg			1	6010D
7440-66-6	Zinc	160	3.5	0.84	mg/Kg			1	6010D
7439-97-6	Mercury	0.055	0.029	0.0088	mg/Kg			1	7471A

*Handwritten signature: MW 1-8-20*

1A-IN  
INORGANIC ANALYSIS DATA SHEET  
METALS - TCLP

Client Sample ID: 19070146

Lab Sample ID: 580-87733-1

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87733-1

SDG ID.:

Matrix: Solid

Date Sampled: 07/16/2019 17:52

Reporting Basis: WET

Date Received: 07/17/2019 08:05

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-38-2	Arsenic	0.034	0.060	0.0072	mg/L	JQ		1	6010D
7440-39-3	Barium	0.40	0.020	0.0039	mg/L			1	6010D
7440-43-9	Cadmium	0.0049	0.020	0.00050	mg/L	JQ		1	6010D
7440-47-3	Chromium	0.0038	0.025	0.0033	mg/L	JQ		1	6010D
7439-92-1	Lead	0.051	0.030	0.0027	mg/L		B	1	6010D
7782-49-2	Selenium	ND	0.10	0.0087	mg/L			1	6010D
7440-22-4	Silver	ND	0.050	0.0085	mg/L			1	6010D
7439-97-6	Mercury	ND	0.0030	0.0015	mg/L			1	7470A

*mw*

1A-IN  
INORGANIC ANALYSIS DATA SHEET  
METALS

Client Sample ID: 19070147

Lab Sample ID: 580-87733-2

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87733-1

SDG ID.:

Matrix: Solid

Date Sampled: 07/16/2019 18:14

Reporting Basis: DRY

Date Received: 07/17/2019 08:05

% Solids: 76.4

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7429-90-5	Aluminum	9100	70	9.2	mg/Kg			1	6010D
7440-36-0	Antimony	1.6	2.8	0.24	mg/Kg	J		1	6010D
7440-38-2	Arsenic	5.5	2.8	0.23	mg/Kg			1	6010D
7440-39-3	Barium	52	0.46	0.073	mg/Kg			1	6010D
7440-41-7	Beryllium	0.088	0.93	0.014	mg/Kg	J		1	6010D
7440-43-9	Cadmium	1.8	0.93	0.045	mg/Kg			1	6010D
7440-70-2	Calcium	10000	51	9.3	mg/Kg			1	6010D
7440-47-3	Chromium	25	1.2	0.20	mg/Kg			1	6010D
7440-48-4	Cobalt	5.5	0.93	0.023	mg/Kg			1	6010D
7440-50-8	Copper	31	2.3	0.37	mg/Kg			1	6010D
7439-89-6	Iron	12000	60	14	mg/Kg			1	6010D
7439-92-1	Lead	38	1.4	0.21	mg/Kg			1	6010D
7439-95-4	Magnesium	3700	51	7.3	mg/Kg			1	6010D
7439-96-5	Manganese	260	1.9	0.36	mg/Kg			1	6010D
7440-02-0	Nickel	22	0.93	0.095	mg/Kg			1	6010D
7440-09-7	Potassium	550	150	6.3	mg/Kg			1	6010D
7782-49-2	Selenium	ND	4.6	0.37	mg/Kg			1	6010D
7440-22-4	Silver	ND	2.3	0.52	mg/Kg			1	6010D
7440-23-5	Sodium	260	93	17	mg/Kg			1	6010D
7440-28-0	Thallium	ND	4.6	0.39	mg/Kg			1	6010D
7440-62-2	Vanadium	27	1.9	0.24	mg/Kg			1	6010D
7440-66-6	Zinc	180	3.7	0.89	mg/Kg			1	6010D
7439-97-6	Mercury	0.079	0.031	0.0093	mg/Kg			1	7471A

*Handwritten signature*

1A-IN  
INORGANIC ANALYSIS DATA SHEET  
METALS - TCLP

Client Sample ID: 19070147

Lab Sample ID: 580-87733-2

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87733-1

SDG ID.:

Matrix: Solid

Date Sampled: 07/16/2019 18:14

Reporting Basis: WET

Date Received: 07/17/2019 08:05

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-38-2	Arsenic	0.0084	0.060	0.0072	mg/L	JG		1	6010D
7440-39-3	Barium	0.40	0.020	0.0039	mg/L			1	6010D
7440-43-9	Cadmium	0.019	0.020	0.00050	mg/L	JG		1	6010D
7440-47-3	Chromium	ND	0.025	0.0033	mg/L			1	6010D
7439-92-1	Lead	0.028	0.030	0.0027	mg/L	J	B	1	6010D
7782-49-2	Selenium	ND	0.10	0.0087	mg/L			1	6010D
7440-22-4	Silver	ND	0.050	0.0085	mg/L			1	6010D
7439-97-6	Mercury	ND	0.0030	0.0015	mg/L			1	7470A

gaw/8-20



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### MEMORANDUM

DATE: August 16, 2019

TO: Seth Wing, START-IV Project Manager, E & E, Seattle, WA

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington *MW*

SUBJ: **Organic Data Quality Assurance Review, May Creek Removal Action Site, Renton, Washington**

REF: TO: TO-68HE0718F0470 PAN: 1004530.0470.001.01

The data quality assurance review of 3 soil samples collected from the May Creek Removal Action site in Renton, Washington, has been completed. Volatile Organic Compound (VOC) and Toxicity Characteristic Leaching Procedure (TCLP) VOC analyses (EPA Methods 1311 and 8260) were performed by Test America, Inc., Tacoma, Washington. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Manual Process (S2B/4VM).

The samples were numbered: 19070146 19070147 19070609

#### Data Qualifications:

##### 1. Sample Holding Times: Acceptable.

The samples were maintained within the QC limits of  $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ . The samples were collected on July 16 and 17, 2019, were received at the laboratory within 48 hours of collection, and were extracted and analyzed by July 22, 2019, therefore meeting QC criteria of less than 14 days between collection and analysis for soil samples.

##### 2. Tuning: Acceptable.

Tuning was performed at the beginning of each 12-hour analysis sequence. All results were within QC limits.

##### 3. Initial Calibration: Acceptable.

All average Relative Response Factors (RRFs) were within the QC limits. All Relative Standard Deviations (RSDs) and/or correlation coefficients were within the QC limits.

##### 4. Continuing Calibration: Satisfactory.

All RRFs were within the QC limits. Applicable percent differences were within QC limits except a high 1,2-Dichloroethane recovery associated with the TCLP VOC analyses; no actions were taken as this analyte was not detected in the TCLP VOC samples.

##### 5. Blanks: Acceptable.



A method blank was analyzed for each 20 sample batch per matrix. There were no detections in any method blank or in the trip blank.

**6. System Monitoring Compounds (SMCs): Satisfactory.**

All SMC recoveries were within QC limits except a high recovery in sample 19070609; no actions were taken based on this outlier as no analytes were detected in this sample.

**7. Blank Spike (BS)/BS Duplicate (BSD) Analysis: Satisfactory.**

BS and BSD analyses were performed per SDG or per matrix per concentration level, whichever was more frequent. All recoveries were within QC limits except hexachlorobutadiene with low recoveries; associated positive results and sample quantitation limits were qualified as estimated quantities with a low bias (JL or UJL).

**8. Spike Duplicate Analysis: Acceptable**

Spike duplicate analyses were performed per SDG or per matrix per concentration level, whichever was more frequent. All spike duplicate results were within QC limits.

**9. Internal Standards: Acceptable.**

All internal standards were within  $\pm 30$  seconds of the continuing calibration internal standard retention times. All area counts were within 50 % to 200 % of the continuing calibration area counts.

**10. Overall Assessment of Data for Use**

Sample 19070146 was provided with a lower sample weight than specified by the method; associated sample results are qualified as estimated quantities with an unknown bias (JK or UJK).

A total of 200 results were validated in this data memorandum. No sample results were qualified as estimated quantities (J) based on duplicate precision outliers, holding time outliers, incorrect sample containers, or sample temperature outliers. Two sample results were qualified as estimated quantities based on spike accuracy outliers. No sample results were rejected (R).

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the analytical method(s), the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, and/or the Office of Emergency and Remedial Response Publication "National Functional Guidelines for Superfund Organic Methods Data Review, January 2017". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

H - The sample result is biased high.

J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

K - The bias of the sample is not known.

L - The sample result is biased low.



- N - The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification".
- NJ - The analyte has been "tentatively identified" or "presumptively" as present and the associated numerical value is the estimated concentration in the sample.
- Q - Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.
- R - The data is rejected and unusable. The analyte may or may not be present in the sample.
- U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87733-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070146

Lab Sample ID: 580-87733-1

Matrix: Solid

Lab File ID: 073019\_0022.D

Analysis Method: 8260C

Date Collected: 07/16/2019 17:52

Sample wt/vol: 4.127(g)

Date Analyzed: 07/30/2019 20:05

Soil Aliquot Vol: \_\_\_\_\_

Dilution Factor: 1

Soil Extract Vol.: \_\_\_\_\_

GC Column: DB-VRX ID: 0.25 (mm)

% Moisture: 20.4

Level: (low/med) Low

Analysis Batch No.: 307013

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-71-8	Dichlorodifluoromethane	ND		3.0	0.75
74-87-3	Chloromethane	ND		7.6	1.4
75-01-4	Vinyl chloride	ND		3.0	0.46
74-83-9	Bromomethane	ND		1.5	0.32
75-00-3	Chloroethane	ND		15	2.4
75-69-4	Trichlorofluoromethane	ND		3.0	0.46
75-35-4	1,1-Dichloroethene	ND		7.6	1.7
75-09-2	Methylene Chloride	ND		61	15
156-60-5	trans-1,2-Dichloroethene	ND		3.0	0.61
75-34-3	1,1-Dichloroethane	ND		1.5	0.29
594-20-7	2,2-Dichloropropane	ND		7.6	1.4
156-59-2	cis-1,2-Dichloroethene	ND		4.6	0.91
74-97-5	Bromochloromethane	ND		3.0	0.38
67-66-3	Chloroform	ND		3.0	0.46
71-55-6	1,1,1-Trichloroethane	ND		3.0	0.46
56-23-5	Carbon tetrachloride	ND		3.0	0.46
563-58-6	1,1-Dichloropropene	ND		3.0	0.46
71-43-2	Benzene	0.62	JK	3.0	0.59
107-06-2	1,2-Dichloroethane	ND		1.5	0.30
79-01-6	Trichloroethene	ND		3.0	0.46
78-87-5	1,2-Dichloropropane	ND		3.0	0.61
74-95-3	Dibromomethane	ND		1.5	0.26
75-27-4	Bromodichloromethane	ND		1.5	0.27
10061-01-5	cis-1,3-Dichloropropene	ND		1.5	0.30
108-88-3	Toluene	ND		15	2.0
10061-02-6	trans-1,3-Dichloropropene	ND		15	2.1
79-00-5	1,1,2-Trichloroethane	ND		3.0	0.38
127-18-4	Tetrachloroethene	ND		3.0	0.61
142-28-9	1,3-Dichloropropane	ND		3.0	0.35
124-48-1	Dibromochloromethane	ND		2.3	0.41
106-93-4	1,2-Dibromoethane	ND		1.5	0.30
108-90-7	Chlorobenzene	ND		3.0	0.38
100-41-4	Ethylbenzene	18	JK	3.0	0.62
630-20-6	1,1,1,2-Tetrachloroethane	ND		4.6	0.90
79-34-5	1,1,2,2-Tetrachloroethane	ND		6.1	1.4
179601-23-1	m-Xylene & p-Xylene	38	JK	15	2.6

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87733-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070146

Lab Sample ID: 580-87733-1

Matrix: Solid

Lab File ID: 073019\_0022.D

Analysis Method: 8260C

Date Collected: 07/16/2019 17:52

Sample wt/vol: 4.127(g)

Date Analyzed: 07/30/2019 20:05

Soil Aliquot Vol: \_\_\_\_\_

Dilution Factor: 1

Soil Extract Vol.: \_\_\_\_\_

GC Column: DB-VRX ID: 0.25 (mm)

% Moisture: 20.4

Level: (low/med) Low

Analysis Batch No.: 307013

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
95-47-6	o-Xylene	4.0	JK	7.6	1.4
100-42-5	Styrene	ND		4.6	1.1
75-25-2	Bromoform	ND		7.6	1.3
98-82-8	Isopropylbenzene	18	JK	3.0	0.70
108-86-1	Bromobenzene	ND		15	1.5
103-65-1	N-Propylbenzene	23	JK	7.6	1.2
96-18-4	1,2,3-Trichloropropane	ND		7.6	1.5
95-49-8	2-Chlorotoluene	ND		7.6	1.4
108-67-8	1,3,5-Trimethylbenzene	97	JK	7.6	1.2
106-43-4	4-Chlorotoluene	ND		7.6	1.5
98-06-6	t-Butylbenzene	ND		4.6	1.0
95-63-6	1,2,4-Trimethylbenzene	38	JK	7.6	1.8
135-98-8	sec-Butylbenzene	22	JK	4.6	1.0
541-73-1	1,3-Dichlorobenzene	ND		7.6	1.7
99-87-6	4-Isopropyltoluene	27	JK	3.0	0.61
106-46-7	1,4-Dichlorobenzene	ND		7.6	1.5
104-51-8	n-Butylbenzene	100	JK	4.6	0.96
95-50-1	1,2-Dichlorobenzene	ND		15	2.0
96-12-8	1,2-Dibromo-3-Chloropropane	ND		15	2.4
120-82-1	1,2,4-Trichlorobenzene	ND		3.0	0.64
87-61-6	1,2,3-Trichlorobenzene	ND		4.6	0.91
87-68-3	Hexachlorobutadiene	ND		4.6	0.91
91-20-3	Naphthalene	8.7	JK	15	2.7
1634-04-4	Methyl tert-butyl ether	ND		3.0	0.46

CAS NO.	SURROGATE	%REC	Q	LIMITS
2037-26-5	Toluene-d8 (Surr)	102		80-120
460-00-4	4-Bromofluorobenzene (Surr)	100		80-120
1868-53-7	Dibromofluoromethane (Surr)	96		80-120
98-08-8	Trifluorotoluene (Surr)	98		80-120
17060-07-0	1,2-Dichloroethane-d4 (Surr)	112		80-121

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FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87733-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070146 Lab Sample ID: 580-87733-1  
 Matrix: Solid (TCLP) Lab File ID: 072219010.D  
 Analysis Method: 8260C Date Collected: 07/16/2019 17:52  
 Sample wt/vol: 5(mL) Date Analyzed: 07/22/2019 20:18  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 100  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: DB-VRX ID: 0.25 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 306311 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-01-4	Vinyl chloride	ND		100	22
75-35-4	1,1-Dichloroethene	ND		400	78
78-93-3	2-Butanone	ND		2000	470
67-66-3	Chloroform	ND		500	50
56-23-5	Carbon tetrachloride	ND		300	30
71-43-2	Benzene	ND		300	53
107-06-2	1,2-Dichloroethane	ND		200	53
79-01-6	Trichloroethene	ND		300	85
127-18-4	Tetrachloroethene	ND		300	41
108-90-7	Chlorobenzene	ND		200	44

CAS NO.	SURROGATE	%REC	Q	LIMITS
2037-26-5	Toluene-d8 (Surr)	105		80-120
460-00-4	4-Bromofluorobenzene (Surr)	99		80-120
1868-53-7	Dibromofluoromethane (Surr)	105		80-120
98-08-8	Trifluorotoluene (Surr)	97		80-120
17060-07-0	1,2-Dichloroethane-d4 (Surr)	118		80-126

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87733-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070147

Lab Sample ID: 580-87733-2

Matrix: Solid

Lab File ID: 073019\_0023.D

Analysis Method: 8260C

Date Collected: 07/16/2019 18:14

Sample wt/vol: 5.749(g)

Date Analyzed: 07/30/2019 20:29

Soil Aliquot Vol: \_\_\_\_\_

Dilution Factor: 1

Soil Extract Vol.: \_\_\_\_\_

GC Column: DB-VRX ID: 0.25 (mm)

% Moisture: 23.6

Level: (low/med) Low

Analysis Batch No.: 307013

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-71-8	Dichlorodifluoromethane	ND		2.3	0.56
74-87-3	Chloromethane	ND		5.7	1.1
75-01-4	Vinyl chloride	ND		2.3	0.34
74-83-9	Bromomethane	ND		1.1	0.24
75-00-3	Chloroethane	ND		11	1.8
75-69-4	Trichlorofluoromethane	ND		2.3	0.34
75-35-4	1,1-Dichloroethene	ND		5.7	1.3
75-09-2	Methylene Chloride	ND		46	11
156-60-5	trans-1,2-Dichloroethene	ND		2.3	0.46
75-34-3	1,1-Dichloroethane	ND		1.1	0.22
594-20-7	2,2-Dichloropropane	ND		5.7	1.0
156-59-2	cis-1,2-Dichloroethene	ND		3.4	0.68
74-97-5	Bromochloromethane	ND		2.3	0.28
67-66-3	Chloroform	ND		2.3	0.34
71-55-6	1,1,1-Trichloroethane	ND		2.3	0.34
56-23-5	Carbon tetrachloride	ND		2.3	0.34
563-58-6	1,1-Dichloropropene	ND		2.3	0.34
71-43-2	Benzene	ND		2.3	0.44
107-06-2	1,2-Dichloroethane	ND		1.1	0.23
79-01-6	Trichloroethene	ND		2.3	0.34
78-87-5	1,2-Dichloropropane	ND		2.3	0.46
74-95-3	Dibromomethane	ND		1.1	0.19
75-27-4	Bromodichloromethane	ND		1.1	0.21
10061-01-5	cis-1,3-Dichloropropene	ND		1.1	0.23
108-88-3	Toluene	ND		11	1.5
10061-02-6	trans-1,3-Dichloropropene	ND		11	1.6
79-00-5	1,1,2-Trichloroethane	ND		2.3	0.28
127-18-4	Tetrachloroethene	ND		2.3	0.46
142-28-9	1,3-Dichloropropane	ND		2.3	0.26
124-48-1	Dibromochloromethane	ND		1.7	0.31
106-93-4	1,2-Dibromoethane	ND		1.1	0.23
108-90-7	Chlorobenzene	ND		2.3	0.28
100-41-4	Ethylbenzene	0.80	JR	2.3	0.47
630-20-6	1,1,1,2-Tetrachloroethane	ND		3.4	0.67
79-34-5	1,1,2,2-Tetrachloroethane	ND		4.6	1.0
179601-23-1	m-Xylene & p-Xylene	ND		11	1.9

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87733-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070147 Lab Sample ID: 580-87733-2  
 Matrix: Solid Lab File ID: 073019\_0023.D  
 Analysis Method: 8260C Date Collected: 07/16/2019 18:14  
 Sample wt/vol: 5.749(g) Date Analyzed: 07/30/2019 20:29  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: DB-VRX ID: 0.25 (mm)  
 % Moisture: 23.6 Level: (low/med) Low  
 Analysis Batch No.: 307013 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
95-47-6	o-Xylene	ND		5.7	1.0
100-42-5	Styrene	ND		3.4	0.84
75-25-2	Bromoform	ND		5.7	0.96
98-82-8	Isopropylbenzene	ND		2.3	0.52
108-86-1	Bromobenzene	ND		11	1.1
103-65-1	N-Propylbenzene	ND		5.7	0.87
96-18-4	1,2,3-Trichloropropane	ND		5.7	1.1
95-49-8	2-Chlorotoluene	ND		5.7	1.1
108-67-8	1,3,5-Trimethylbenzene	ND		5.7	0.92
106-43-4	4-Chlorotoluene	ND		5.7	1.1
98-06-6	t-Butylbenzene	ND		3.4	0.75
95-63-6	1,2,4-Trimethylbenzene	ND		5.7	1.4
135-98-8	sec-Butylbenzene	ND		3.4	0.76
541-73-1	1,3-Dichlorobenzene	ND		5.7	1.3
99-87-6	4-Isopropyltoluene	ND		2.3	0.46
106-46-7	1,4-Dichlorobenzene	ND		5.7	1.1
104-51-8	n-Butylbenzene	1.2	JQ	3.4	0.72
95-50-1	1,2-Dichlorobenzene	ND		11	1.5
96-12-8	1,2-Dibromo-3-Chloropropane	ND		11	1.8
120-82-1	1,2,4-Trichlorobenzene	ND		2.3	0.48
87-61-6	1,2,3-Trichlorobenzene	ND		3.4	0.68
87-68-3	Hexachlorobutadiene	ND		3.4	0.68
91-20-3	Naphthalene	ND		11	2.1
1634-04-4	Methyl tert-butyl ether	ND		2.3	0.34

CAS NO.	SURROGATE	%REC	Q	LIMITS
2037-26-5	Toluene-d8 (Surr)	101		80-120
460-00-4	4-Bromofluorobenzene (Surr)	100		80-120
1868-53-7	Dibromofluoromethane (Surr)	98		80-120
98-08-8	Trifluorotoluene (Surr)	91		80-120
17060-07-0	1,2-Dichloroethane-d4 (Surr)	109		80-121

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FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87733-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070147 Lab Sample ID: 580-87733-2  
 Matrix: Solid (TCLP) Lab File ID: 072219011.D  
 Analysis Method: 8260C Date Collected: 07/16/2019 18:14  
 Sample wt/vol: 5(mL) Date Analyzed: 07/22/2019 20:42  
 Soil Aliquot Vol.: \_\_\_\_\_ Dilution Factor: 100  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: DB-VRX ID: 0.25 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 306311 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-01-4	Vinyl chloride	ND		100	22
75-35-4	1,1-Dichloroethene	ND		400	78
78-93-3	2-Butanone	ND		2000	470
67-66-3	Chloroform	ND		500	50
56-23-5	Carbon tetrachloride	ND		300	30
71-43-2	Benzene	ND		300	53
107-06-2	1,2-Dichloroethane	ND		200	53
79-01-6	Trichloroethene	ND		300	85
127-18-4	Tetrachloroethene	ND		300	41
108-90-7	Chlorobenzene	ND		200	44

CAS NO.	SURROGATE	%REC	Q	LIMITS
2037-26-5	Toluene-d8 (Surr)	108		80-120
460-00-4	4-Bromofluorobenzene (Surr)	98		80-120
1868-53-7	Dibromofluoromethane (Surr)	101		80-120
98-08-8	Trifluorotoluene (Surr)	98		80-120
17060-07-0	1,2-Dichloroethane-d4 (Surr)	120		80-126

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FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87733-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070609

Lab Sample ID: 580-87733-3

Matrix: Solid

Lab File ID: 073019\_0012.D

Analysis Method: 8260C

Date Collected: 07/17/2019 00:01

Sample wt/vol: 5(g)

Date Analyzed: 07/30/2019 15:58

Soil Aliquot Vol: \_\_\_\_\_

Dilution Factor: 1

Soil Extract Vol.: \_\_\_\_\_

GC Column: DB-VRX ID: 0.25 (mm)

% Moisture: \_\_\_\_\_

Level: (low/med) Low

Analysis Batch No.: 307013

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-71-8	Dichlorodifluoromethane	ND		2.0	0.49
74-87-3	Chloromethane	ND		5.0	0.93
75-01-4	Vinyl chloride	ND		2.0	0.30
74-83-9	Bromomethane	ND		1.0	0.21
75-00-3	Chloroethane	ND		10	1.6
75-69-4	Trichlorofluoromethane	ND		2.0	0.30
75-35-4	1,1-Dichloroethene	ND		5.0	1.1
75-09-2	Methylene Chloride	ND		40	9.9
156-60-5	trans-1,2-Dichloroethene	ND		2.0	0.40
75-34-3	1,1-Dichloroethane	ND		1.0	0.19
594-20-7	2,2-Dichloropropane	ND		5.0	0.90
156-59-2	cis-1,2-Dichloroethene	ND		3.0	0.60
74-97-5	Bromochloromethane	ND		2.0	0.25
67-66-3	Chloroform	ND		2.0	0.30
71-55-6	1,1,1-Trichloroethane	ND		2.0	0.30
56-23-5	Carbon tetrachloride	ND		2.0	0.30
563-58-6	1,1-Dichloropropene	ND		2.0	0.30
71-43-2	Benzene	ND		2.0	0.39
107-06-2	1,2-Dichloroethane	ND		1.0	0.20
79-01-6	Trichloroethene	ND		2.0	0.30
78-87-5	1,2-Dichloropropane	ND		2.0	0.40
74-95-3	Dibromomethane	ND		1.0	0.17
75-27-4	Bromodichloromethane	ND		1.0	0.18
10061-01-5	cis-1,3-Dichloropropene	ND		1.0	0.20
108-88-3	Toluene	ND		10	1.3
10061-02-6	trans-1,3-Dichloropropene	ND		10	1.4
79-00-5	1,1,2-Trichloroethane	ND		2.0	0.25
127-18-4	Tetrachloroethene	ND		2.0	0.40
142-28-9	1,3-Dichloropropane	ND		2.0	0.23
124-48-1	Dibromochloromethane	ND		1.5	0.27
106-93-4	1,2-Dibromoethane	ND		1.0	0.20
108-90-7	Chlorobenzene	ND		2.0	0.25
100-41-4	Ethylbenzene	ND		2.0	0.41
630-20-6	1,1,1,2-Tetrachloroethane	ND		3.0	0.59
79-34-5	1,1,2,2-Tetrachloroethane	ND		4.0	0.90
179601-23-1	m-Xylene & p-Xylene	ND		10	1.7

FORM I 8260C

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FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87733-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070609 Lab Sample ID: 580-87733-3  
 Matrix: Solid Lab File ID: 073019\_0012.D  
 Analysis Method: 8260C Date Collected: 07/17/2019 00:01  
 Sample wt/vol: 5(g) Date Analyzed: 07/30/2019 15:58  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: DB-VRX ID: 0.25 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 307013 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
95-47-6	o-Xylene	ND		5.0	0.92
100-42-5	Styrene	ND		3.0	0.74
75-25-2	Bromoform	ND		5.0	0.84
98-82-8	Isopropylbenzene	ND		2.0	0.46
108-86-1	Bromobenzene	ND		10	1.0
103-65-1	N-Propylbenzene	ND		5.0	0.76
96-18-4	1,2,3-Trichloropropane	ND		5.0	1.0
95-49-8	2-Chlorotoluene	ND		5.0	0.93
108-67-8	1,3,5-Trimethylbenzene	ND		5.0	0.81
106-43-4	4-Chlorotoluene	ND		5.0	1.0
98-06-6	t-Butylbenzene	ND		3.0	0.66
95-63-6	1,2,4-Trimethylbenzene	ND		5.0	1.2
135-98-8	sec-Butylbenzene	ND		3.0	0.67
541-73-1	1,3-Dichlorobenzene	ND		5.0	1.1
99-87-6	4-Isopropyltoluene	ND		2.0	0.40
106-46-7	1,4-Dichlorobenzene	ND		5.0	0.98
104-51-8	n-Butylbenzene	ND		3.0	0.63
95-50-1	1,2-Dichlorobenzene	ND		10	1.3
96-12-8	1,2-Dibromo-3-Chloropropane	ND		10	1.6
120-82-1	1,2,4-Trichlorobenzene	ND		2.0	0.42
87-61-6	1,2,3-Trichlorobenzene	ND		3.0	0.60
87-68-3	Hexachlorobutadiene	ND		3.0	0.60
91-20-3	Naphthalene	ND		10	1.8
1634-04-4	Methyl tert-butyl ether	ND		2.0	0.30

CAS NO.	SURROGATE	%REC	Q	LIMITS
2037-26-5	Toluene-d8 (Surr)	97		80-120
460-00-4	4-Bromofluorobenzene (Surr)	109		80-120
1868-53-7	Dibromofluoromethane (Surr)	107		80-120
98-08-8	Trifluorotoluene (Surr)	99		80-120
17060-07-0	1,2-Dichloroethane-d4 (Surr)	126		80-121

*Handwritten signature and date: 8-28-19*



## ecology and environment, inc.

Global Environmental Specialists

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### MEMORANDUM

DATE: August 16, 2019

TO: Seth Wing, START-IV Project Manager, E & E, Seattle, WA

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington *MW*

SUBJ: **Organic Data Quality Assurance Review, May Creek Removal Action Site, Renton, Washington**

REF: TO: TO-68HE0718F0470 PAN: 1004530.0470.001.01

The data quality assurance review of 2 soil samples collected from the May Creek Removal Action site in Renton, Washington, has been completed. Semivolatile Organic Compound (SVOC) and Toxicity Characteristic Leaching Procedure (TCLP) SVOC analysis (EPA Methods 1311 and 8270) were performed by Test America, Inc., Tacoma, Washington. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Manual Process (S2B/4VM).

The samples were numbered: 19070146 19070147

#### Data Qualifications:

**1. Sample Holding Times: Acceptable.**

The samples were maintained and received within the QC limits of 0°C to 6°C. The samples were collected on July 16, 2019, were extracted by July 23, 2019, and were analyzed by July 23, 2019, therefore meeting holding time criteria of less than 14 days between collection and extraction and less than 40 days between extraction and analysis.

**2. Tuning: Acceptable.**

Tuning was performed at the beginning of each 12-hour analysis sequence. All results were within QC limits.

**3. Initial Calibration: Satisfactory.**

All average Relative Response Factors (RRFs) were within the QC limits except n-nitroso-di-n-propyl amine; associated sample quantitation limits were rejected (R). All Relative Standard Deviations (RSDs) were within the QC limits.

**4. Continuing Calibration: Satisfactory.**

All RRFs were within the QC limits except n-nitroso-di-n-propyl amine; no additional actions were taken. All % differences were within the QC limits.

**5. Blanks: Satisfactory.**

A method blank was analyzed for each 20 sample batch per matrix. There were no detections in any method blank except butyl benzyl phthalate (112 ug/kg). Associated positive sample results less than the reporting limit were qualified as not detected (U).

**6. System Monitoring Compounds (SMCs): Satisfactory.**

All SMC recoveries were within QC limits except 2,4,6-tribromophenol in the method blank with one low recovery (3% below QC limits; no actions were taken based on this outlier as the other SMC recoveries were within QC limits) and two high outliers in SVOC sample 19070146 (no actions were taken based on these outliers as matrix interference is suspected).

**7. Matrix Spike (MS)/MS Duplicate (MSD) Analysis: Satisfactory.**

MS and MSD analyses were performed per SDG or per matrix per concentration level, whichever was more frequent. All recoveries were within QC limits except 3,3'-dichlorobenzidine, 4-nitrophenol, benzo(g,h,i)perylene, and indeno(1,2,3-cd)pyrene with low recoveries, benzidine, benzoic acid, and 2,4-dinitrophenol with 0% recoveries, di-n-octylphthalate with high recoveries (all associated with batch 0735) and benzidine with low recoveries associated with batch 0091; no qualifiers were applied based on these outliers alone.

**8. Blank Spike (BS)/BS Duplicate (BSD) Analysis: Satisfactory.**

BS and BSD analyses were performed per SDG or per matrix per concentration level, whichever was more frequent. All recoveries were within QC limits except two high SVOC recoveries (no actions were taken as these analytes were not detected in the samples) and a low pyridine TCLP SVOC recovery (associated positive results and sample quantitation limits were qualified as estimated quantities with a low bias [JL or UJL]).

**9. Duplicate Analysis: Satisfactory.**

Spike duplicate analyses were performed per SDG or per matrix per concentration level, whichever was more frequent. All spike duplicate results were within QC limits except several outliers in the MS and MSD associated with batch 0735. No qualifiers were applied based on the duplicate outliers alone.

**10. Internal Standards: Acceptable.**

All internal standards (IS) were within  $\pm 30$  seconds of the continuing calibration IS retention times. All area counts were within 50 % to 200 % of the continuing calibration area counts.

**11. Performance Evaluation Sample Analysis: Not Provided.**

Performance evaluation samples were not provided to the laboratory.

**12. Overall Assessment of Data for Use**

A total of 158 results were validated in this data memorandum. No sample results were qualified as estimated quantities (J) based on duplicate precision outliers, holding time outliers, incorrect sample containers, or sample temperature outliers. Two sample results were qualified as estimated quantities based on spike accuracy outliers. The following analyte was detected in the method blank: butyl benzyl phthalate. Two sample results were rejected (R).

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the analytical method(s), the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, and/or the Office of Emergency and Remedial Response Publication "National Functional Guidelines for Superfund Organic Methods Data Review, January 2017". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

#### Data Qualifiers and Definitions

- H - The sample result is biased high.
- J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
- K - The bias of the sample is not known.
- L - The sample result is biased low.
- N - The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification".
- NJ - The analyte has been "tentatively identified" or "presumptively" as present and the associated numerical value is the estimated concentration in the sample.
- Q - Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.
- R - The data is rejected and unusable. The analyte may or may not be present in the sample.
- U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.

FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87733-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070146

Lab Sample ID: 580-87733-1

Matrix: Solid

Lab File ID: 0722A022.D

Analysis Method: 8270D

Date Collected: 07/16/2019 17:52

Extract. Method: 3550B

Date Extracted: 07/19/2019 10:03

Sample wt/vol: 10.302(g)

Date Analyzed: 07/22/2019 18:33

Con. Extract Vol.: 10(mL)

Dilution Factor: 5

Injection Volume: 1(uL)

Level: (low/med) Low

% Moisture: 20.4

GPC Cleanup: (Y/N) N

Analysis Batch No.: 306240

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
108-95-2	Phenol	ND		910	140
111-44-4	Bis(2-chloroethyl)ether	ND		610	47
95-57-8	2-Chlorophenol	ND		1200	79
541-73-1	1,3-Dichlorobenzene	ND		300	29
106-46-7	1,4-Dichlorobenzene	ND		300	51
100-51-6	Benzyl alcohol	ND		3000	470
95-50-1	1,2-Dichlorobenzene	ND		300	73
95-48-7	2-Methylphenol	ND		910	60
15831-10-4	3 & 4 Methylphenol	ND		1200	91
621-64-7	N-Nitrosodi-n-propylamine	ND		1200	130
67-72-1	Hexachloroethane	ND		910	54
98-95-3	Nitrobenzene	ND		1200	120
78-59-1	Isophorone	ND		910	45
88-75-5	2-Nitrophenol	ND		1200	130
105-67-9	2,4-Dimethylphenol	ND		610	91
65-85-0	Benzoic acid	ND		12000	3500
111-91-1	Bis(2-chloroethoxy)methane	ND		1200	110
120-83-2	2,4-Dichlorophenol	ND		610	91
120-82-1	1,2,4-Trichlorobenzene	ND		300	37
91-20-3	Naphthalene	150		150	30
106-47-8	4-Chloroaniline	ND		9100	2400
87-68-3	Hexachlorobutadiene	ND		300	91
59-50-7	4-Chloro-3-methylphenol	ND		910	200
91-57-6	2-Methylnaphthalene	2000		300	54
77-47-4	Hexachlorocyclopentadiene	ND		610	120
88-06-2	2,4,6-Trichlorophenol	ND		910	220
95-95-4	2,4,5-Trichlorophenol	ND		1200	270
91-58-7	2-Chloronaphthalene	ND		150	30
88-74-4	2-Nitroaniline	ND		610	91
131-11-3	Dimethyl phthalate	ND		910	79
208-96-8	Acenaphthylene	ND		150	30
606-20-2	2,6-Dinitrotoluene	ND		910	210
99-09-2	3-Nitroaniline	ND		1200	240
83-32-9	Acenaphthene	50	JQ	150	30

*mw 8-16-19*

FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87733-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070146

Lab Sample ID: 580-87733-1

Matrix: Solid

Lab File ID: 0722A022.D

Analysis Method: 8270D

Date Collected: 07/16/2019 17:52

Extract. Method: 3550B

Date Extracted: 07/19/2019 10:03

Sample wt/vol: 10.302(g)

Date Analyzed: 07/22/2019 18:33

Con. Extract Vol.: 10(mL)

Dilution Factor: 5

Injection Volume: 1(uL)

Level: (low/med) Low

% Moisture: 20.4

GPC Cleanup: (Y/N) N

Analysis Batch No.: 306240

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
51-28-5	2,4-Dinitrophenol	ND		6100	1200
100-02-7	4-Nitrophenol	ND		9100	2200
132-64-9	Dibenzofuran	ND		910	36
121-14-2	2,4-Dinitrotoluene	ND		1200	260
84-66-2	Diethyl phthalate	ND		9100	460
7005-72-3	4-Chlorophenyl phenyl ether	ND		1200	38
86-73-7	Fluorene	ND		150	30
100-01-6	4-Nitroaniline	ND		910	300
534-52-1	4,6-Dinitro-2-methylphenol	ND		6100	610
86-30-6	N-Nitrosodiphenylamine	ND		370	49
101-55-3	4-Bromophenyl phenyl ether	ND		1200	55
118-74-1	Hexachlorobenzene	ND		300	91
87-86-5	Pentachlorophenol	ND		2700	810
85-01-8	Phenanthrene	190	J Q	370	73
120-12-7	Anthracene	52	J Q	150	30
84-74-2	Di-n-butyl phthalate	ND		3000	350
206-44-0	Fluoranthene	240		150	30
129-00-0	Pyrene	390		370	39
85-68-7	Butyl benzyl phthalate	ND		1200	310
91-94-1	3,3'-Dichlorobenzidine	ND		2400	610
56-55-3	Benzo[a]anthracene	130	J Q	150	30
218-01-9	Chrysene	150	J	370	79
117-81-7	Bis(2-ethylhexyl) phthalate	800	J	3700	430
117-84-0	Di-n-octyl phthalate	ND		910	350
50-32-8	Benzo[a]pyrene	85	J Q	370	79
193-39-5	Indeno[1,2,3-cd]pyrene	120	J Q	240	30
53-70-3	Dibenz(a,h)anthracene	ND		300	73
191-24-2	Benzo[g,h,i]perylene	130	J Q	370	55
86-74-8	Carbazole	ND		910	50
90-12-0	1-Methylnaphthalene	2400		180	30
205-99-2	Benzo[b]fluoranthene	110	J Q	150	30
207-08-9	Benzo[k]fluoranthene	ND		370	85
108-60-1	bis(chloroisopropyl) ether	ND		1200	85



FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87733-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070146 Lab Sample ID: 580-87733-1  
 Matrix: Solid Lab File ID: 0722A022.D  
 Analysis Method: 8270D Date Collected: 07/16/2019 17:52  
 Extract. Method: 3550B Date Extracted: 07/19/2019 10:03  
 Sample wt/vol: 10.302(g) Date Analyzed: 07/22/2019 18:33  
 Con. Extract Vol.: 10(mL) Dilution Factor: 5  
 Injection Volume: 1(uL) Level: (low/med) Low  
 % Moisture: 20.4 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 306240 Units: ug/Kg

CAS NO.	SURROGATE	%REC	Q	LIMITS
367-12-4	2-Fluorophenol (Surr)	112		60-125
4165-62-2	Phenol-d5 (Surr)	98		59-120
4165-60-0	Nitrobenzene-d5 (Surr)	123	X	62-120
321-60-8	2-Fluorobiphenyl	81		57-120
118-79-6	2,4,6-Tribromophenol (Surr)	104		52-125
1718-51-0	Terphenyl-d14 (Surr)	121	X	58-120

*mu*

*mu 8/6/19*

FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87733-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070146 Lab Sample ID: 580-87733-1  
 Matrix: Solid (TCLP) Lab File ID: 40scan072319a015.D  
 Analysis Method: 8270D Date Collected: 07/16/2019 17:52  
 Extract. Method: 3510C Date Extracted: 07/23/2019 19:38  
 Sample wt/vol: 200 (mL) Date Analyzed: 07/23/2019 22:15  
 Con. Extract Vol.: 2.0 (mL) Dilution Factor: 1  
 Injection Volume: 1 (uL) Level: (low/med) Low  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 306358 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
106-46-7	1,4-Dichlorobenzene	ND		2.0	0.20
95-48-7	2-Methylphenol	ND		3.0	0.25
15831-10-4	3 & 4 Methylphenol	0.22	JQ	4.0	0.15
67-72-1	Hexachloroethane	ND		5.0	0.25
98-95-3	Nitrobenzene	ND		5.0	0.20
87-68-3	Hexachlorobutadiene	ND		5.0	0.30
88-06-2	2,4,6-Trichlorophenol	ND		3.0	0.50
95-95-4	2,4,5-Trichlorophenol	ND		2.0	0.50
121-14-2	2,4-Dinitrotoluene	ND		5.0	0.50
118-74-1	Hexachlorobenzene	ND		3.0	0.20
87-86-5	Pentachlorophenol	ND		50	2.6
110-86-1	Pyridine	ND		75	3.0

CAS NO.	SURROGATE	%REC	Q	LIMITS
367-12-4	2-Fluorophenol (Surr)	81		20-147
4165-62-2	Phenol-d5 (Surr)	77		21-135
4165-60-0	Nitrobenzene-d5 (Surr)	94		60-120
321-60-8	2-Fluorobiphenyl	84		63-120
118-79-6	2,4,6-Tribromophenol (Surr)	92		28-131
1718-51-0	Terphenyl-d14 (Surr)	92		66-120

*mw 8/16/19*



FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87733-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070147

Lab Sample ID: 580-87733-2

Matrix: Solid

Lab File ID: 0722A023.D

Analysis Method: 8270D

Date Collected: 07/16/2019 18:14

Extract. Method: 3550B

Date Extracted: 07/19/2019 11:38

Sample wt/vol: 10,309(g)

Date Analyzed: 07/22/2019 18:57

Con. Extract Vol.: 10(mL)

Dilution Factor: 5

Injection Volume: 1(uL)

Level: (low/med) Low

% Moisture: 23.6

GPC Cleanup: (Y/N) N

Analysis Batch No.: 306240

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
108-95-2	Phenol	ND		0.95	0.15
111-44-4	Bis(2-chloroethyl)ether	0.18	J Q	0.64	0.049
95-57-8	2-Chlorophenol	ND		1.3	0.083
541-73-1	1,3-Dichlorobenzene	ND		0.32	0.030
106-46-7	1,4-Dichlorobenzene	ND		0.32	0.053
100-51-6	Benzyl alcohol	ND		3.2	0.49
95-50-1	1,2-Dichlorobenzene	ND		0.32	0.076
95-48-7	2-Methylphenol	ND		0.95	0.062
15831-10-4	3 & 4 Methylphenol	ND		1.3	0.095
621-64-7	N-Nitrosodi-n-propylamine	ND		1.3	0.14
67-72-1	Hexachloroethane	ND		0.95	0.056
98-95-3	Nitrobenzene	ND		1.3	0.13
78-59-1	Isophorone	ND		0.95	0.047
88-75-5	2-Nitrophenol	ND		1.3	0.13
105-67-9	2,4-Dimethylphenol	ND		0.64	0.095
65-85-0	Benzoic acid	ND		13	3.7
111-91-1	Bis(2-chloroethoxy)methane	ND		1.3	0.11
120-83-2	2,4-Dichlorophenol	ND		0.64	0.095
120-82-1	1,2,4-Trichlorobenzene	ND		0.32	0.038
91-20-3	Naphthalene	0.048	J Q	0.16	0.032
106-47-8	4-Chloroaniline	ND		9.5	2.5
87-68-3	Hexachlorobutadiene	ND		0.32	0.095
59-50-7	4-Chloro-3-methylphenol	ND		0.95	0.21
91-57-6	2-Methylnaphthalene	0.17	J Q	0.32	0.056
77-47-4	Hexachlorocyclopentadiene	ND		0.64	0.13
88-06-2	2,4,6-Trichlorophenol	ND		0.95	0.23
95-95-4	2,4,5-Trichlorophenol	ND		1.3	0.29
91-58-7	2-Chloronaphthalene	ND		0.16	0.032
88-74-4	2-Nitroaniline	ND		0.64	0.095
131-11-3	Dimethyl phthalate	ND		0.95	0.083
208-96-8	Acenaphthylene	ND		0.16	0.032
606-20-2	2,6-Dinitrotoluene	ND		0.95	0.22
99-09-2	3-Nitroaniline	ND		1.3	0.25
83-32-9	Acenaphthene	ND		0.16	0.032

FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87733-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070147

Lab Sample ID: 580-87733-2

Matrix: Solid

Lab File ID: 0722A023.D

Analysis Method: 8270D

Date Collected: 07/16/2019 18:14

Extract. Method: 3550B

Date Extracted: 07/19/2019 11:38

Sample wt/vol: 10,309(g)

Date Analyzed: 07/22/2019 18:57

Con. Extract Vol.: 10(mL)

Dilution Factor: 5

Injection Volume: 1(uL)

Level: (low/med) Low

% Moisture: 23.6

GPC Cleanup: (Y/N) N

Analysis Batch No.: 306240

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
51-28-5	2,4-Dinitrophenol	ND		6.4	1.3
100-02-7	4-Nitrophenol	ND		9.5	2.3
132-64-9	Dibenzofuran	ND		0.95	0.037
121-14-2	2,4-Dinitrotoluene	ND		1.3	0.27
84-66-2	Diethyl phthalate	ND		9.5	0.48
7005-72-3	4-Chlorophenyl phenyl ether	ND		1.3	0.040
86-73-7	Fluorene	ND		0.16	0.032
100-01-6	4-Nitroaniline	ND		0.95	0.32
534-52-1	4,6-Dinitro-2-methylphenol	ND		6.4	0.64
86-30-6	N-Nitrosodiphenylamine	ND		0.38	0.051
101-55-3	4-Bromophenyl phenyl ether	ND		1.3	0.058
118-74-1	Hexachlorobenzene	ND		0.32	0.095
87-86-5	Pentachlorophenol	ND		2.9	0.84
85-01-8	Phenanthrene	0.12	J Q	0.38	0.076
120-12-7	Anthracene	0.037	J Q	0.16	0.032
84-74-2	Di-n-butyl phthalate	ND		3.2	0.36
206-44-0	Fluoranthene	0.37	J Q	0.16	0.032
129-00-0	Pyrene	0.37	J Q	0.38	0.041
85-68-7	Butyl benzyl phthalate	0.33	J Q	1.3	0.32
91-94-1	3,3'-Dichlorobenzidine	ND		2.5	0.64
56-55-3	Benzo[a]anthracene	0.14	J Q	0.16	0.032
218-01-9	Chrysene	0.20	J Q	0.38	0.083
117-81-7	Bis(2-ethylhexyl) phthalate	0.75	J Q	3.8	0.45
117-84-0	Di-n-octyl phthalate	ND		0.95	0.36
50-32-8	Benzo[a]pyrene	0.18	J Q	0.38	0.083
193-39-5	Indeno[1,2,3-cd]pyrene	0.19	J Q	0.25	0.032
53-70-3	Dibenz(a,h)anthracene	ND		0.32	0.076
191-24-2	Benzo[g,h,i]perylene	0.13	J Q	0.38	0.057
86-74-8	Carbazole	ND		0.95	0.052
90-12-0	1-Methylnaphthalene	0.21	J Q	0.19	0.032
205-99-2	Benzo[b]fluoranthene	0.31		0.16	0.032
207-08-9	Benzo[k]fluoranthene	ND		0.38	0.089
108-60-1	bis(chloroisopropyl) ether	ND		1.3	0.089

FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87733-1  
SDG No.: \_\_\_\_\_  
Client Sample ID: 19070147 Lab Sample ID: 580-87733-2  
Matrix: Solid Lab File ID: 0722A023.D  
Analysis Method: 8270D Date Collected: 07/16/2019 18:14  
Extract. Method: 3550B Date Extracted: 07/19/2019 11:38  
Sample wt/vol: 10,309(g) Date Analyzed: 07/22/2019 18:57  
Con. Extract Vol.: 10(mL) Dilution Factor: 5  
Injection Volume: 1(uL) Level: (low/med) Low  
% Moisture: 23.6 GPC Cleanup: (Y/N) N  
Analysis Batch No.: 306240 Units: ug/Kg

CAS NO.	SURROGATE	%REC	Q	LIMITS
367-12-4	2-Fluorophenol (Surr)	99		60-125
4165-62-2	Phenol-d5 (Surr)	88		59-120
4165-60-0	Nitrobenzene-d5 (Surr)	98		62-120
321-60-8	2-Fluorobiphenyl	90		57-120
118-79-6	2,4,6-Tribromophenol (Surr)	104		52-125
1718-51-0	Terphenyl-d14 (Surr)	115		58-120

*mu 8/16/19*

FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87733-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070147 Lab Sample ID: 580-87733-2  
 Matrix: Solid (TCLP) Lab File ID: 40scan072319a016.D  
 Analysis Method: 8270D Date Collected: 07/16/2019 18:14  
 Extract. Method: 3510C Date Extracted: 07/23/2019 19:38  
 Sample wt/vol: 200 (mL) Date Analyzed: 07/23/2019 22:38  
 Con. Extract Vol.: 2.0 (mL) Dilution Factor: 1  
 Injection Volume: 1 (uL) Level: (low/med) Low  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 306358 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
106-46-7	1,4-Dichlorobenzene	ND		2.0	0.20
95-48-7	2-Methylphenol	ND		3.0	0.25
15831-10-4	3 & 4 Methylphenol	0.19	JQ	4.0	0.15
67-72-1	Hexachloroethane	ND		5.0	0.25
98-95-3	Nitrobenzene	ND		5.0	0.20
87-68-3	Hexachlorobutadiene	ND		5.0	0.30
88-06-2	2,4,6-Trichlorophenol	ND		3.0	0.50
95-95-4	2,4,5-Trichlorophenol	ND		2.0	0.50
121-14-2	2,4-Dinitrotoluene	ND		5.0	0.50
118-74-1	Hexachlorobenzene	ND		3.0	0.20
87-86-5	Pentachlorophenol	ND		50	2.6
110-86-1	Pyridine	ND		75	3.0

CAS NO.	SURROGATE	%REC	Q	LIMITS
367-12-4	2-Fluorophenol (Surr)	83		20-147
4165-62-2	Phenol-d5 (Surr)	77		21-135
4165-60-0	Nitrobenzene-d5 (Surr)	97		60-120
321-60-8	2-Fluorobiphenyl	87		63-120
118-79-6	2,4,6-Tribromophenol (Surr)	86		28-131
1718-51-0	Terphenyl-d14 (Surr)	89		66-120

*mw 8/16/19*



## ecology and environment, inc.

Global Environmental Specialists

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### MEMORANDUM

DATE: August 16, 2019

TO: Steve Hall, START IV Project Manager, E & E, Seattle, Washington

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington *MW*

SUBJ: **Organic Data Quality Assurance Review, May Creek Removal Action Site, Renton, Washington**

REF: TO: FO-68HE07181/0470 PAN: 1004530.0470.001.01

The data quality assurance review of 3 soil samples collected from the May Creek Removal Action site located in Renton, Washington, has been completed. Analysis for Extended Gasoline Range Total Petroleum Hydrocarbons (Ecology Method NWTPH-Gx) analyses was performed by Test America, Inc., Tacoma, Washington. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Manual Process (S2B/4VM).

The samples were numbered: 19070146 19070147 19070609

#### Data Qualifications:

**1. Sample Holding Times: Satisfactory.**

The samples were maintained and received within the QC limits of  $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ . The samples were collected on July 16, 2019, were received at the laboratory within 48 hours of collection, and were analyzed by August 2, 2019, therefore exceeding QC criteria of less than 14 days between collection and analysis for soil samples; associated positive results and sample quantitation limits were qualified as estimated quantities with a low bias (JL or UJL).

**2. Initial Calibration: Acceptable.**

Calculations were verified as correct. All relative percent differences (RPDs) were less than or equal to the laboratory control limits.

**3. Continuing Calibration: Acceptable.**

Calculations were verified as correct. All percent differences were less than or equal to the laboratory control limits.

**4. Blanks: Satisfactory.**

A method blank was analyzed at the required frequency of every 12 hours for each matrix, preparation technique, and analysis system. Gasoline-range TPHs were not detected in the trip blank but were detected in the method blank (2.42 mg/kg); no actions were taken as all sample results were

either non-detected or were greater than the reporting limit.

**5. System Monitoring Compounds (SMC): Acceptable.**

All recoveries of the SMCs were within QC limits.

**6. Matrix Spike (MS) and MS Duplicate (MSD) Analyses: Acceptable.**

MS and MSD results were within laboratory QC limits.

**7. Blank Spikes (BS) and BS Duplicate (BSD) Analyses: Acceptable.**

BS and BSD results were within laboratory QC limits.

**8. Duplicates: Acceptable.**

All duplicate and spike duplicate results were within laboratory QC limits.

**9. Quantitation and Quantitation Limits: Acceptable.**

Sample quantitation and sample quantitation limits were correctly calculated.

**10. Laboratory Contact: Not Required.**

No laboratory contact was required.

**11. Overall Assessment of Data for Use**

A total of three results were validated in this data memorandum. No sample results were qualified as estimated quantities (J) based on duplicate precision outliers, spike accuracy outliers, incorrect sample containers, or sample temperature outliers. Three sample results were qualified as estimated quantities based on holding time outliers. No sample results were rejected (R).

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the analytical method(s), the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, and/or the Office of Emergency and Remedial Response Publication "National Functional Guidelines for Superfund Organic Methods Data Review, January 2017". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

H - The sample result is biased high.

J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

K - The bias of the sample is not known.

- L - The sample result is biased low.
- Q - Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.
- R - The data is rejected and unusable. The analyte may or may not be present in the sample.
- U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.

FORM I  
GC VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87733-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070146 RA Lab Sample ID: 580-87733-1 RA  
 Matrix: Solid Lab File ID: 08011957.D  
 Analysis Method: NWTPH-Gx Date Collected: 07/16/2019 17:52  
 Sample wt/vol: 6.727(g) Date Analyzed: 08/02/2019 10:52  
 Soil Aliquot Vol: 1.075 (mL) Dilution Factor: 1  
 Soil Extract Vol.: 10(mL) GC Column: RTX-VRX ID: 0.45 (mm)  
 % Moisture: 20.4 Level: (low/med) Medium  
 Analysis Batch No.: 307325 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00228	Gasoline	360	<del>HB</del> JL MN	11	4.9

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	133		50-150

*MW 8/16/19*



FORM I  
GC VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87733-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070147 Lab Sample ID: 580-87733-2  
 Matrix: Solid Lab File ID: 07311942.D  
 Analysis Method: NWTPH-Gx Date Collected: 07/16/2019 18:14  
 Sample wt/vol: 8.126(g) Date Analyzed: 08/01/2019 05:06  
 Soil Aliquot Vol: 1.075 (mL) Dilution Factor: 1  
 Soil Extract Vol.: 10(mL) GC Column: RTX-VRX ID: 0.45(mm)  
 % Moisture: 23.6 Level: (low/med) Medium  
 Analysis Batch No.: 307211 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00228	Gasoline	19	<del>HB</del> JL mm	9.6	4.4

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	83		50-150

*mw 8/6/19*

FORM I  
GC VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87733-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070609 Lab Sample ID: 580-87733-3  
 Matrix: Solid Lab File ID: 07311937.D  
 Analysis Method: NWTPH-Gx Date Collected: 07/17/2019 00:01  
 Sample wt/vol: 10(g) Date Analyzed: 08/01/2019 03:03  
 Soil Aliquot Vol: 1.075 (mL) Dilution Factor: 1  
 Soil Extract Vol.: 10(mL) GC Column: RTX-VRX ID: 0.45 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Medium  
 Analysis Batch No.: 307211 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00228	Gasoline	ND <i>TH</i>		5.0 <i>UL</i>	2.3

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	96		50-150

*mw 8-16-19*



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### MEMORANDUM

DATE: August 16, 2019

TO: Seth Wing, START-IV Project Manager, E & E, Seattle, WA

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington *MW*

SUBJ: **Organic Data Quality Assurance Review, May Creek Removal Action Site, Renton, Washington**

REF: TO: TO-68HE0718F0470      PAN: 1004530.0470.001.G1

The data quality assurance review of 2 soil samples collected from the May Creek Removal Action site located in Renton, Washington, has been completed. Analyses for Chlorinated Pesticides (EPA Method 8081) and Polychlorinated Biphenyls (PCBs - EPA Method 8082) were performed by Test America, Inc., Tacoma, Washington. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Manual Process (S2B/4VM).

The samples were numbered: 19070146      19070147

#### Data Qualifications:

**1. Sample Holding Times: Acceptable.**

The samples were maintained at 0°C to 6°C. The samples were collected on July 16, 2019, extracted on July 19, 2019, and were analyzed by July 29, 2019, therefore meeting QC criteria of less than 14 days between collection and soil sample extraction and less than 40 days between extraction and analysis. There are no holding time limits for Method 8082 PCBs.

**2. Instrument Performance: Acceptable.**

The surrogate retention time percent difference between the initial calibration standards and the remaining standards and samples was  $\leq 0.3\%$ .

**3. Initial and Continuing Calibration: Satisfactory.**

All initial calibration relative standard deviations (RSDs) were within QC limits. All continuing calibration % differences (% D) were within QC limits except some high PCB results (no actions were taken based on these outliers as they were not detected in the associated samples) and some pesticide outliers on one column only (no actions were taken as these analytes were either not qualified or were qualified as having a concentration less than the reporting limit).

**4. Blanks: Acceptable.**

A method blank was prepared at the required frequency of every time samples were extracted for each matrix and for each concentration level, or every 20 samples, whichever is greater, and for each

analytical system. No target analytes were detected in the laboratory blanks.

**5. System Monitoring Compounds (SMCs): Satisfactory.**

All recoveries of the SMCs were within QC limits except a high pesticide outlier in a continuing calibration blank (no actions were taken as no pesticides were detected in this blank) and high outliers in sample 19070146 (no actions were taken as matrix interference is suspected).

**6. Blank Spike (BS) and BS Duplicate (BSD) Analyses: Acceptable.**

BS and BSD recoveries were within QC limits.

**7. Duplicates: Acceptable.**

Relative Percent Differences (RPDs) of all spiked analytes were within the required control limits.

**8. Compound Identification: Satisfactory.**

All positive sample results were dual-column confirmed with differences between the columns less than 40% except cis-chlordane and Endosulfan II in sample 19070146 and dieldrin and trans-chlordane in sample 19070147; associated positive results were reported as the lower of the two results and were qualified as estimated quantities with an unknown bias.

**9. Target Compound Quantitation and Quantitation Limits: Acceptable.**

Sample results and quantitation limits were correctly calculated.

**10. Laboratory Contact**

No laboratory contact was required.

**11. Overall Assessment**

The PCB internal standard result exceeded QC limits on one column for sample 19070146; results were reported from the other column.

A total of 56 results were validated in this data memorandum. No sample results were qualified as estimated quantities (J) based on duplicate precision outliers, spike accuracy outliers, holding time outliers, incorrect sample containers, or sample temperature outliers.

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result. This updated memorandum provides additional results that weren't provided in the original submittal.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the analytical method(s), the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, and/or the Office of Emergency and Remedial Response Publication "National Functional Guidelines for Superfund Organic Methods Data Review, January 2017". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

H - The sample result is biased high.

- J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
- K - The bias of the sample is not known.
- L - The sample result is biased low.
- Q - Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.
- R - The data is rejected and unusable. The analyte may or may not be present in the sample.
- U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.

FORM I  
PESTICIDES ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87733-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070146

Lab Sample ID: 580-87733-1

Matrix: Solid

Lab File ID: 45F072919a018.D

Analysis Method: 8081B

Date Collected: 07/16/2019 17:52

Extraction Method: 3546

Date Extracted: 07/19/2019 13:39

Sample wt/vol: 12.717(g)

Date Analyzed: 07/29/2019 22:20

Con. Extract Vol.: 10(mL)

Dilution Factor: 3

Injection Volume: 1(uL)

GC Column: ZB-CLPest-1 ID: 0.25(mm)

% Moisture: 20.4

GPC Cleanup: (Y/N) N

Analysis Batch No.: 306904

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
309-00-2	Aldrin	ND		8.9	1.1
319-84-6	alpha-BHC	ND		5.9	0.47
319-85-7	beta-BHC	ND		15	0.74
319-86-8	delta-BHC	ND		8.9	0.83
58-89-9	gamma-BHC (Lindane)	ND		5.9	2.2
72-54-8	4,4'-DDD	ND		5.9	0.68
72-55-9	4,4'-DDE	2.9 J Q		5.9	1.1
50-29-3	4,4'-DDT	ND		5.9	1.1
60-57-1	Dieldrin	7.6		5.9	1.0
959-98-8	Endosulfan I	ND		5.9	1.0
72-20-8	Endrin	ND		5.9	1.4
76-44-8	Heptachlor	ND		8.9	0.56
1024-57-3	Heptachlor epoxide	ND		8.9	0.89
8001-35-2	Toxaphene	ND		300	74
5103-74-2	trans-Chlordane	1.7 J Q		8.9	0.95

CAS NO.	SURROGATE	%REC	Q	LIMITS
877-09-8	Tetrachloro-m-xylene	75		50-123
2051-24-3	DCB Decachlorobiphenyl	118		36-136

*mw 8/16/19*

FORM I  
PESTICIDES ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87733-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070146 Lab Sample ID: 580-87733-1  
 Matrix: Solid Lab File ID: 45F072919a018.D  
 Analysis Method: 8081B Date Collected: 07/16/2019 17:52  
 Extraction Method: 3546 Date Extracted: 07/19/2019 13:39  
 Sample wt/vol: 12.717(g) Date Analyzed: 07/29/2019 22:20  
 Con. Extract Vol.: 10(mL) Dilution Factor: 3  
 Injection Volume: 1(uL) GC Column: ZB-CLPest-2 ID: 0.25(mm)  
 % Moisture: 20.4 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 306904 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
33213-65-9	Endosulfan II	4.7	J <u>Q</u>	5.9	0.77
5103-71-9	cis-Chlordane	2.5	J <u>Q</u>	5.9	2.2

*Mw*

*Mw 8/6/19*





FORM I  
PESTICIDES ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87733-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070147 Lab Sample ID: 580-87733-2  
 Matrix: Solid Lab File ID: 45F072919a019.D  
 Analysis Method: 8081B Date Collected: 07/16/2019 18:14  
 Extraction Method: 3546 Date Extracted: 07/19/2019 13:39  
 Sample wt/vol: 11.422(g) Date Analyzed: 07/29/2019 23:08  
 Con. Extract Vol.: 10(mL) Dilution Factor: 3  
 Injection Volume: 1(uL) GC Column: ZB-CLPest-1 ID: 0.25(mm)  
 % Moisture: 23.6 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 306904 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
309-00-2	Aldrin	ND		10	1.3
319-84-6	alpha-BHC	ND		6.9	0.55
319-85-7	beta-BHC	ND		17	0.86
319-86-8	delta-BHC	ND		10	0.96
58-89-9	gamma-BHC (Lindane)	ND		6.9	2.6
72-54-8	4,4'-DDD	ND		6.9	0.79
72-55-9	4,4'-DDE	ND		6.9	1.3
50-29-3	4,4'-DDT	ND		6.9	1.3
959-98-8	Endosulfan I	ND		6.9	1.2
33213-65-9	Endosulfan II	ND		6.9	0.89
72-20-8	Endrin	ND		6.9	1.6
76-44-8	Heptachlor	ND		10	0.65
1024-57-3	Heptachlor epoxide	ND		10	1.0
8001-35-2	Toxaphene	ND		340	86

CAS NO.	SURROGATE	%REC	Q	LIMITS
877-09-8	Tetrachloro-m-xylene	66		50-123
2051-24-3	DCB Decachlorobiphenyl	92		36-136

*MW 8/16/19*

FORM I  
PESTICIDES ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87733-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070147 Lab Sample ID: 580-87733-2  
 Matrix: Solid Lab File ID: 45F072919a019.D  
 Analysis Method: 8081B Date Collected: 07/16/2019 18:14  
 Extraction Method: 3546 Date Extracted: 07/19/2019 13:39  
 Sample wt/vol: 11.422(g) Date Analyzed: 07/29/2019 23:08  
 Con. Extract Vol.: 10(mL) Dilution Factor: 3  
 Injection Volume: 1(uL) GC Column: ZB-CLPest-2 ID: 0.25(mm)  
 % Moisture: 23.6 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 306904 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
60-57-1	Dieldrin	3.3	J b Q	6.9	1.2
5103-71-9	cis-Chlordane	<del>1.3</del>	<del>J b</del> Q	6.9	2.6
5103-74-2	trans-Chlordane	1.3	J b Q	10	1.1

*mm 8/6/19*

FORM I  
PESTICIDES ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87733-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070147 Lab Sample ID: 580-87733-2  
 Matrix: Solid Lab File ID: 45F072619a018.D  
 Analysis Method: 8081B Date Collected: 07/16/2019 18:14  
 Extraction Method: 3546 Date Extracted: 07/19/2019 13:39  
 Sample wt/vol: 11.422(g) Date Analyzed: 07/26/2019 22:06  
 Con. Extract Vol.: 10(mL) Dilution Factor: 5  
 Injection Volume: 1(uL) GC Column: ZB-CLPest-1 ID: 0.25(mm)  
 % Moisture: 23.6 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 306695 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
1031-07-8	Endosulfan sulfate	ND		11	1.6
7421-93-4	Endrin aldehyde	ND		110	28
72-43-5	Methoxychlor	ND		57	2.1
53494-70-5	Endrin ketone	ND		11	2.4

CAS NO.	SURROGATE	%REC	Q	LIMITS
877-09-8	Tetrachloro-m-xylene	76		50-123
2051-24-3	DCB Decachlorobiphenyl	86		36-136

*MW 8/6/19*

FORM I  
PCBS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87733-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070146 Lab Sample ID: 580-87733-1  
 Matrix: Solid Lab File ID: 35F072919a038.d  
 Analysis Method: 8082A Date Collected: 07/16/2019 17:52  
 Extraction Method: 3546 Date Extracted: 07/19/2019 13:39  
 Sample wt/vol: 12.717(g) Date Analyzed: 07/29/2019 22:11  
 Con. Extract Vol.: 10 (mL) Dilution Factor: 1  
 Injection Volume: 1 (uL) GC Column: ZB-CLPest-1 ID: 0.25 (mm)  
 % Moisture: 20.4 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 306960 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
12674-11-2	PCB-1016	ND		0.020	0.0073
11104-28-2	PCB-1221	ND		0.020	0.0042
11141-16-5	PCB-1232	ND		0.020	0.0048
53469-21-9	PCB-1242	ND		0.020	0.0035
12672-29-6	PCB-1248	ND		0.020	0.0029
11097-69-1	PCB-1254	ND		0.020	0.0037
11096-82-5	PCB-1260	ND		0.020	0.0073

CAS NO.	SURROGATE	%REC	Q	LIMITS
2051-24-3	DCB Decachlorobiphenyl	82		39-142
877-09-8	Tetrachloro-m-xylene	81		35-129

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FORM I  
PCBS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87733-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070147 Lab Sample ID: 580-87733-2  
 Matrix: Solid Lab File ID: 35F072919a039.d  
 Analysis Method: 8082A Date Collected: 07/16/2019 18:14  
 Extraction Method: 3546 Date Extracted: 07/19/2019 13:39  
 Sample wt/vol: 11.422(g) Date Analyzed: 07/29/2019 22:28  
 Con. Extract Vol.: 10(mL) Dilution Factor: 1  
 Injection Volume: 1(uL) GC Column: ZB-CLPest-1 ID: 0.25 (mm)  
 % Moisture: 23.6 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 306960 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
12674-11-2	PCB-1016	ND		0.023	0.0085
11104-28-2	PCB-1221	ND		0.023	0.0048
11141-16-5	PCB-1232	ND		0.023	0.0056
53469-21-9	PCB-1242	ND		0.023	0.0040
12672-29-6	PCB-1248	ND		0.023	0.0033
11097-69-1	PCB-1254	ND		0.023	0.0042
11096-82-5	PCB-1260	ND		0.023	0.0085

CAS NO.	SURROGATE	%REC	Q	LIMITS
2051-24-3	DCB Decachlorobiphenyl	66		39-142
877-09-8	Tetrachloro-m-xylene	80		35-129

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8/16/19



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### MEMORANDUM

DATE: August 16, 2019

TO: Seth Wing, START-IV Project Manager, E & E, Seattle, WA

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington *MW*

SUBJ: **Organic Data Quality Assurance Review, May Creek Removal Action Site, Renton, Washington**

REF: TO: TO-68HE0718F0470 PAN: 1004530.0470.001.01

The data quality assurance review of two soil samples collected from the May Creek Removal Action site located in Renton, Washington, has been completed. Analysis for Extended Diesel Range Total Petroleum Hydrocarbons (Ecology Method NWTPH-Dx) was performed by Test America, Inc., Tacoma, Washington. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Manual Process (S2B/4VM).

The samples were numbered: 19070146 19070147

#### Data Qualifications:

**1. Sample Holding Times: Acceptable.**

The samples were maintained at  $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ . The samples were collected on July 16, 2019, extracted on July 19, 2019, and analyzed by July 23, 2019, therefore meeting QC criteria of less than 14 days between collection and extraction for soil samples and less than 40 days between extraction and analysis.

**2. Initial Calibration: Acceptable.**

Calculations were verified as correct. All relative percent differences (RPDs) were within the laboratory control limits.

**3. Continuing Calibration: Acceptable.**

Calculations were verified as correct. All percent differences (%Ds) were within the laboratory control limits.

**4. Blanks: Acceptable.**

A method blank was analyzed for each extraction batch for each matrix and analysis system. Diesel- and motor oil-range TPHs were not detected in the method blank.

**6. System Monitoring Compounds (SMC): Acceptable.**

All recoveries of the SMCs were within QC limits.

**7. Matrix Spike (MS) and MS Duplicate (MSD): Satisfactory.**

MS and MSD results were within QC limits except high motor oil results; no actions were taken as the BS and BSD results were within QC limits and matrix interference is suspected.

**8. Blank Spike (BS) and BS Duplicate (BSD): Acceptable.**

BS and BSD recoveries were within QC limits.

**9. Duplicates: Acceptable.**

All duplicate and spike duplicate results were within QC limits.

**10. Quantitation and Quantitation Limits: Acceptable.**

Sample concentrations were correctly calculated.

**11. Laboratory Contact: Not Required.**

No laboratory contact was required.

**12. Overall Assessment of Data for Use**

A total of four results were validated in this data memorandum. No sample results were qualified as estimated quantities (J) based on duplicate precision outliers, spike accuracy outliers, holding time outliers, incorrect sample containers, or sample temperature outliers. No sample results were rejected (R).

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the analytical method(s), the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, and/or the Office of Emergency and Remedial Response Publication "National Functional Guidelines for Superfund Organic Methods Data Review, January 2017". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

H - The sample result is biased high.

J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

K - The bias of the sample is not known.

L - The sample result is biased low.

- Q - Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.
- R - The data is rejected and unusable. The analyte may or may not be present in the sample.
- U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.



FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87733-1  
SDG No.: \_\_\_\_\_  
Client Sample ID: 19070146 Lab Sample ID: 580-87733-1  
Matrix: Solid Lab File ID: 019F2001.D  
Analysis Method: NWTPH-Dx Date Collected: 07/16/2019 17:52  
Extraction Method: 3546 Date Extracted: 07/19/2019 15:13  
Sample wt/vol: 13.132(g) Date Analyzed: 07/23/2019 04:24  
Con. Extract Vol.: 10(mL) Dilution Factor: 3  
Injection Volume: 1(uL) GC Column: ZB-1HT ID: 0.25(mm)  
% Moisture: 20.4 GPC Cleanup: (Y/N) N  
Analysis Batch No.: 306328 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00163	#2 Diesel (C10-C24)	640		140	35
STL00299	Motor Oil (>C24-C36)	1100		140	50

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	87		50-150

*mw 8/6/19*

FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87733-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070147 Lab Sample ID: 580-87733-2  
 Matrix: Solid Lab File ID: 020F2101.D  
 Analysis Method: NWTPH-Dx Date Collected: 07/16/2019 18:14  
 Extraction Method: 3546 Date Extracted: 07/19/2019 15:13  
 Sample wt/vol: 10.765(g) Date Analyzed: 07/23/2019 04:45  
 Con. Extract Vol.: 10(mL) Dilution Factor: 6  
 Injection Volume: 1(uL) GC Column: ZB-1HT ID: 0.25(mm)  
 % Moisture: 23.6 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 306328 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00163	#2 Diesel (C10-C24)	<del>890</del>		360	90
STL00299	Motor Oil (>C24-C36)	890	<del>FL</del>	360	130

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	88		50-150

*mw 8/6/19*



## ecology and environment, inc.

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### MEMORANDUM

DATE: August 16, 2019

TO: Seth Wing, START-IV Project Manager, E & E, Seattle, WA

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington *MW*

SUBJ: **Data Quality Assurance Review, May Creek Removal Action Site,  
Renton, Washington**

REL: TO: TO-68HE0718F0470 PAN: 1004530.0470.001.01

The data quality assurance review of 2 soil samples collected from the May Creek Removal Action site in Renton, Washington, has been completed. Ignitability (EPA Method 1020A) analysis was performed by Test America, Inc., Tacoma, Washington. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Manual Process (S2B/4VM).

The samples were numbered: 19070146 19070147

#### Data Qualifications:

The samples were maintained at  $< 6^{\circ}\text{C}$ . The samples were collected on July 16, 2019, and were analyzed on July 24, 2019 for ignitability. All samples were analyzed within QC holding time limits of less than 14 days between collection and flash point analysis.

All flash point laboratory control standard results were within QC limits. There were no detections in the ignitability method blank. The ignitability duplicate results were within QC limits.

In the reviewers' professional judgment, all sample results were acceptable except as noted.

A total of two results were validated in this data memorandum. No sample results were qualified as estimated quantities (J) based on duplicate precision outliers, spike accuracy outliers, holding time outliers, incorrect sample containers, or sample temperature outliers. No sample results were rejected (R).

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the analytical method(s), and the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, 2012. Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

#### Data Qualifiers and Definitions

H - The sample result is biased high.

- J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
- K - The bias of the sample is not known.
- L - The sample result is biased low.
- Q - Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.
- R - The data is rejected and unusable. The analyte may or may not be present in the sample.
- U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.

1B-IN  
INORGANIC ANALYSIS DATA SHEET  
GENERAL CHEMISTRY

Client Sample ID: 19070146

Lab Sample ID: 580-87733-1

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87733-1

SDG ID.:

Matrix: Solid

Date Sampled: 07/16/2019 17:52

Reporting Basis: WET

Date Received: 07/17/2019 08:05

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
	Ignitability	> 211			Degrees F			1	1020A

*MW 8/16/19*

1B-IN  
INORGANIC ANALYSIS DATA SHEET  
GENERAL CHEMISTRY

Client Sample ID: 19070147

Lab Sample ID: 580-87733-2

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87733-1

SDG ID.:

Matrix: Solid

Date Sampled: 07/16/2019 18:14

Reporting Basis: WET

Date Received: 07/17/2019 08:05

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
	Ignitability	> 211			Degrees F			1	1020A

*mw 8-16-19*



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### MEMORANDUM

DATE: August 22, 2019

TO: Seth Wing, START-IV Project Manager, E & E, Seattle, WA

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington *MW*

SUBJ: **Organic Data Quality Assurance Review, May Creek Removal Action Site, Renton, Washington**

REF: TO: TO-68HE0718F0470      PAN: 1004530.0470.001.01

The data quality assurance review of 6 soil samples collected from the May Creek Removal Action site in Renton, Washington, has been completed. Volatile Organic Compound (VOC) analysis (EPA Method 8260C) was performed by Test America, Inc., Tacoma, Washington. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Manual Process (S2B/4VM).

The samples were numbered:

19070148      19070149      19070150      19070151      19070152      19070610

#### Data Qualifications:

**1. Sample Holding Times: Acceptable.**

The samples were maintained within the QC limits of  $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ . The samples were collected on July 17, 2019, were received at the laboratory within 48 hours of collection, and were analyzed by July 30, 2019, therefore meeting QC criteria of less than 14 days between collection and analysis for soil samples.

**2. Tuning: Acceptable.**

Tuning was performed at the beginning of each 12-hour analysis sequence. All results were within QC limits.

**3. Initial Calibration: Acceptable.**

All average Relative Response Factors (RRFs) were within the QC limits. All Relative Standard Deviations (RSDs) and/or correlation coefficients were within the QC limits.

**4. Continuing Calibration: Satisfactory.**

All RRFs were within the QC limits. All percent differences were within QC limits except the continuing calibration verification (CCV) associated with batch 580-307013 recovered above the upper control limit for 1,2-Dichloroethane. The samples associated with this CCV were non-detects for the affected analyte; therefore, no qualifications were applied.

**5. Blanks: Acceptable.**

A method blank was analyzed for each 20 sample batch per matrix. There were no detections in any method blank. There were no detections in the trip blank.

**6. System Monitoring Compounds (SMCs): Satisfactory.**

All SMC recoveries were within QC limits except surrogate recovery for sample 19070150 was above the QC limits. Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

**7. Blank Spike (BS)/BS Duplicate (BSD) Analysis: Satisfactory.**

BS and BSD analyses were performed per SDG or per matrix per concentration level, whichever was more frequent. All recoveries were within QC limits except hexachlorobutadiene failed the recovery criteria low for the BS and BSD. The sample quantitation limit was qualified as an estimated quantity with a low bias (UJL) in the associated samples.

**8. Spike Duplicate Analysis: Acceptable.**

Spike duplicate analyses were performed per SDG or per matrix per concentration level, whichever was more frequent. All spike duplicate results were within QC limits.

**9. Internal Standards: Acceptable.**

All internal standards were within  $\pm 30$  seconds of the continuing calibration internal standard retention times. All area counts were within 50 % to 200 % of the continuing calibration area counts.

**10. Performance Evaluation Sample Analysis: Not Provided.**

Performance evaluation samples were not provided to the laboratory.

**11. Overall Assessment of Data for Use**

The following sample was provided to the laboratory with a significantly different initial weight than that required by the reference method: 19070152. Deviations in the weight by more than 20% may affect reporting limits and potentially method performance. The method specifies 5g. The amount provided was above this range. Associated sample results were qualified as estimated quantities with an unknown bias (JK or UJK).

A total of 420 results were validated in this data memorandum. No sample results were qualified as estimated quantities (J) based on duplicate precision outliers, holding time outliers, incorrect sample containers, or sample temperature outliers. A total of 6 sample results were qualified as estimated quantities based on spike accuracy outliers. No sample results were rejected (R).

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the analytical method(s), the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, and/or the Office of Emergency and Remedial Response Publication "National Functional Guidelines for Superfund Organic Methods Data Review, January 2017". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.



### Data Qualifiers and Definitions

- H - The sample result is biased high.
- J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
- K - The bias of the sample is not known.
- L - The sample result is biased low.
- N - The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification".
- NJ - The analyte has been "tentatively identified" or "presumptively" as present and the associated numerical value is the estimated concentration in the sample.
- Q - Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.
- R - The data is rejected and unusable. The analyte may or may not be present in the sample.
- U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87760-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070148

Lab Sample ID: 580-87760-1

Matrix: Solid

Lab File ID: 073019\_0017.D

Analysis Method: 8260C

Date Collected: 07/17/2019 15:16

Sample wt/vol: 5.168(g)

Date Analyzed: 07/30/2019 18:01

Soil Aliquot Vol: \_\_\_\_\_

Dilution Factor: 1

Soil Extract Vol.: \_\_\_\_\_

GC Column: DB-VRX ID: 0.25 (mm)

% Moisture: 21.5

Level: (low/med) Low

Analysis Batch No.: 307013

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-71-8	Dichlorodifluoromethane	ND		2.5	0.60
74-87-3	Chloromethane	ND		6.2	1.1
75-01-4	Vinyl chloride	ND		2.5	0.37
74-83-9	Bromomethane	ND		1.2	0.26
75-00-3	Chloroethane	ND		12	2.0
75-69-4	Trichlorofluoromethane	ND		2.5	0.37
75-35-4	1,1-Dichloroethene	ND		6.2	1.4
75-09-2	Methylene Chloride	ND		49	12
156-60-5	trans-1,2-Dichloroethene	ND		2.5	0.49
75-34-3	1,1-Dichloroethane	ND		1.2	0.23
594-20-7	2,2-Dichloropropane	ND		6.2	1.1
156-59-2	cis-1,2-Dichloroethene	ND		3.7	0.74
74-97-5	Bromochloromethane	ND		2.5	0.31
67-66-3	Chloroform	ND		2.5	0.37
71-55-6	1,1,1-Trichloroethane	ND		2.5	0.37
56-23-5	Carbon tetrachloride	ND		2.5	0.37
563-58-6	1,1-Dichloropropene	ND		2.5	0.37
71-43-2	Benzene	ND		2.5	0.48
107-06-2	1,2-Dichloroethane	ND		1.2	0.25
79-01-6	Trichloroethene	ND		2.5	0.37
78-87-5	1,2-Dichloropropane	ND		2.5	0.49
74-95-3	Dibromomethane	ND		1.2	0.21
75-27-4	Bromodichloromethane	ND		1.2	0.22
10061-01-5	cis-1,3-Dichloropropene	ND		1.2	0.25
108-88-3	Toluene	ND		12	1.6
10061-02-6	trans-1,3-Dichloropropene	ND		12	1.7
79-00-5	1,1,2-Trichloroethane	ND		2.5	0.31
127-18-4	Tetrachloroethene	ND		2.5	0.49
142-28-9	1,3-Dichloropropane	ND		2.5	0.28
124-48-1	Dibromochloromethane	ND		1.8	0.33
106-93-4	1,2-Dibromoethane	ND		1.2	0.25
108-90-7	Chlorobenzene	ND		2.5	0.31
100-41-4	Ethylbenzene	1.2	Q	2.5	0.51
630-20-6	1,1,1,2-Tetrachloroethane	ND		3.7	0.73
79-34-5	1,1,2,2-Tetrachloroethane	ND		4.9	1.1
179601-23-1	m-Xylene & p-Xylene	ND		12	2.1

*Mw 8-22-19*

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87760-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070148

Lab Sample ID: 580-87760-1

Matrix: Solid

Lab File ID: 073019\_0017.D

Analysis Method: 8260C

Date Collected: 07/17/2019 15:16

Sample wt/vol: 5.168(g)

Date Analyzed: 07/30/2019 18:01

Soil Aliquot Vol: \_\_\_\_\_

Dilution Factor: 1

Soil Extract Vol.: \_\_\_\_\_

GC Column: DB-VRX ID: 0.25 (mm)

% Moisture: 21.5

Level: (low/med) Low

Analysis Batch No.: 307013

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
95-47-6	o-Xylene	ND		6.2	1.1
100-42-5	Styrene	ND		3.7	0.91
75-25-2	Bromoform	ND		6.2	1.0
98-82-8	Isopropylbenzene	ND		2.5	0.57
108-86-1	Bromobenzene	ND		12	1.2
103-65-1	N-Propylbenzene	ND		6.2	0.94
96-18-4	1,2,3-Trichloropropane	ND		6.2	1.2
95-49-8	2-Chlorotoluene	ND		6.2	1.1
108-67-8	1,3,5-Trimethylbenzene	ND		6.2	1.0
106-43-4	4-Chlorotoluene	ND		6.2	1.2
98-06-6	t-Butylbenzene	ND		3.7	0.81
95-63-6	1,2,4-Trimethylbenzene	ND		6.2	1.5
135-98-8	sec-Butylbenzene	ND		3.7	0.83
541-73-1	1,3-Dichlorobenzene	ND		6.2	1.4
99-87-6	4-Isopropyltoluene	ND		2.5	0.49
106-46-7	1,4-Dichlorobenzene	ND		6.2	1.2
104-51-8	n-Butylbenzene	ND		3.7	0.78
95-50-1	1,2-Dichlorobenzene	ND		12	1.6
96-12-8	1,2-Dibromo-3-Chloropropane	ND		12	2.0
120-82-1	1,2,4-Trichlorobenzene	ND		2.5	0.52
87-61-6	1,2,3-Trichlorobenzene	ND		3.7	0.74
87-68-3	Hexachlorobutadiene	ND		3.7	0.74
91-20-3	Naphthalene	ND		12	2.2
1634-04-4	Methyl tert-butyl ether	ND		2.5	0.37

CAS NO.	SURROGATE	%REC	Q	LIMITS
2037-26-5	Toluene-d8 (Surr)	98		80-120
460-00-4	4-Bromofluorobenzene (Surr)	103		80-120
1868-53-7	Dibromofluoromethane (Surr)	103		80-120
98-08-8	Trifluorotoluene (Surr)	97		80-120
17060-07-0	1,2-Dichloroethane-d4 (Surr)	119		80-121

*MW 822-19*

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87760-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070149

Lab Sample ID: 580-87760-2

Matrix: Solid

Lab File ID: 073019\_0018.D

Analysis Method: 8260C

Date Collected: 07/17/2019 15:44

Sample wt/vol: 4.832(g)

Date Analyzed: 07/30/2019 18:26

Soil Aliquot Vol: \_\_\_\_\_

Dilution Factor: 1

Soil Extract Vol.: \_\_\_\_\_

GC Column: DB-VRX ID: 0.25 (mm)

% Moisture: 21.8

Level: (low/med) Low

Analysis Batch No.: 307013

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-71-8	Dichlorodifluoromethane	ND		2.6	0.65
74-87-3	Chloromethane	ND		6.6	1.2
75-01-4	Vinyl chloride	ND		2.6	0.40
74-83-9	Bromomethane	ND		1.3	0.28
75-00-3	Chloroethane	ND		13	2.1
75-69-4	Trichlorofluoromethane	ND		2.6	0.40
75-35-4	1,1-Dichloroethene	ND		6.6	1.5
75-09-2	Methylene Chloride	ND		53	13
156-60-5	trans-1,2-Dichloroethene	ND		2.6	0.53
75-34-3	1,1-Dichloroethane	ND		1.3	0.25
594-20-7	2,2-Dichloropropane	ND		6.6	1.2
156-59-2	cis-1,2-Dichloroethene	ND		4.0	0.79
74-97-5	Bromochloromethane	ND		2.6	0.33
67-66-3	Chloroform	ND		2.6	0.40
71-55-6	1,1,1-Trichloroethane	ND		2.6	0.40
56-23-5	Carbon tetrachloride	ND		2.6	0.40
563-58-6	1,1-Dichloropropene	ND		2.6	0.40
71-43-2	Benzene	ND		2.6	0.52
107-06-2	1,2-Dichloroethane	ND		1.3	0.26
79-01-6	Trichloroethene	ND		2.6	0.40
78-87-5	1,2-Dichloropropane	ND		2.6	0.53
74-95-3	Dibromomethane	ND		1.3	0.22
75-27-4	Bromodichloromethane	ND		1.3	0.24
10061-01-5	cis-1,3-Dichloropropene	ND		1.3	0.26
108-88-3	Toluene	ND		13	1.7
10061-02-6	trans-1,3-Dichloropropene	ND		13	1.9
79-00-5	1,1,2-Trichloroethane	ND		2.6	0.33
127-18-4	Tetrachloroethene	ND		2.6	0.53
142-28-9	1,3-Dichloropropane	ND		2.6	0.30
124-48-1	Dibromochloromethane	ND		2.0	0.36
106-93-4	1,2-Dibromoethane	ND		1.3	0.26
108-90-7	Chlorobenzene	ND		2.6	0.33
100-41-4	Ethylbenzene	ND		2.6	0.54
630-20-6	1,1,1,2-Tetrachloroethane	ND		4.0	0.78
79-34-5	1,1,2,2-Tetrachloroethane	ND		5.3	1.2
179601-23-1	m-Xylene & p-Xylene	ND		13	2.2

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87760-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070149

Lab Sample ID: 580-87760-2

Matrix: Solid

Lab File ID: 073019\_0018.D

Analysis Method: 8260C

Date Collected: 07/17/2019 15:44

Sample wt/vol: 4.832(g)

Date Analyzed: 07/30/2019 18:26

Soil Aliquot Vol: \_\_\_\_\_

Dilution Factor: 1

Soil Extract Vol.: \_\_\_\_\_

GC Column: DB-VRX ID: 0.25 (mm)

% Moisture: 21.8

Level: (low/med) Low

Analysis Batch No.: 307013

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
95-47-6	o-Xylene	ND		6.6	1.2
100-42-5	Styrene	ND		4.0	0.98
75-25-2	Bromoform	ND		6.6	1.1
98-82-8	Isopropylbenzene	ND		2.6	0.61
108-86-1	Bromobenzene	ND		13	1.3
103-65-1	N-Propylbenzene	ND		6.6	1.0
96-18-4	1,2,3-Trichloropropane	ND		6.6	1.3
95-49-8	2-Chlorotoluene	ND		6.6	1.2
108-67-8	1,3,5-Trimethylbenzene	ND		6.6	1.1
106-43-4	4-Chlorotoluene	ND		6.6	1.3
98-06-6	t-Butylbenzene	ND		4.0	0.87
95-63-6	1,2,4-Trimethylbenzene	ND		6.6	1.6
135-98-8	sec-Butylbenzene	ND		4.0	0.89
541-73-1	1,3-Dichlorobenzene	ND		6.6	1.5
99-87-6	4-Isopropyltoluene	ND		2.6	0.53
106-46-7	1,4-Dichlorobenzene	ND		6.6	1.3
104-51-8	n-Butylbenzene	ND		4.0	0.83
95-50-1	1,2-Dichlorobenzene	ND		13	1.7
96-12-8	1,2-Dibromo-3-Chloropropane	ND		13	2.1
120-82-1	1,2,4-Trichlorobenzene	ND		2.6	0.56
87-61-6	1,2,3-Trichlorobenzene	ND		4.0	0.79
87-68-3	Hexachlorobutadiene	ND	mu	4.0	0.79
91-20-3	Naphthalene	ND		13	2.4
1634-04-4	Methyl tert-butyl ether	ND	mu	2.6	0.40

CAS NO.	SURROGATE	%REC	Q	LIMITS
2037-26-5	Toluene-d8 (Surr)	98		80-120
460-00-4	4-Bromofluorobenzene (Surr)	101		80-120
1868-53-7	Dibromofluoromethane (Surr)	104		80-120
98-08-8	Trifluorotoluene (Surr)	97		80-120
17060-07-0	1,2-Dichloroethane-d4 (Surr)	118		80-121

*mu 822-19*

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87760-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070150

Lab Sample ID: 580-87760-3

Matrix: Solid

Lab File ID: 073019\_0019.D

Analysis Method: 8260C

Date Collected: 07/17/2019 16:04

Sample wt/vol: 5.802(g)

Date Analyzed: 07/30/2019 18:50

Soil Aliquot Vol: \_\_\_\_\_

Dilution Factor: 1

Soil Extract Vol.: \_\_\_\_\_

GC Column: DB-VRX ID: 0.25 (mm)

% Moisture: 20.6

Level: (low/med) Low

Analysis Batch No.: 307013

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-71-8	Dichlorodifluoromethane	ND		2.2	0.53
74-87-3	Chloromethane	ND		5.4	1.0
75-01-4	Vinyl chloride	ND		2.2	0.33
74-83-9	Bromomethane	ND		1.1	0.23
75-00-3	Chloroethane	ND		11	1.7
75-69-4	Trichlorofluoromethane	ND		2.2	0.33
75-35-4	1,1-Dichloroethene	ND		5.4	1.2
75-09-2	Methylene Chloride	ND		43	11
156-60-5	trans-1,2-Dichloroethene	ND		2.2	0.43
75-34-3	1,1-Dichloroethane	ND		1.1	0.21
594-20-7	2,2-Dichloropropane	ND		5.4	0.98
156-59-2	cis-1,2-Dichloroethene	ND		3.3	0.65
74-97-5	Bromochloromethane	ND		2.2	0.27
67-66-3	Chloroform	ND		2.2	0.33
71-55-6	1,1,1-Trichloroethane	ND		2.2	0.33
56-23-5	Carbon tetrachloride	ND		2.2	0.33
563-58-6	1,1-Dichloropropene	ND		2.2	0.33
71-43-2	Benzene	ND		2.2	0.42
107-06-2	1,2-Dichloroethane	ND		1.1	0.22
79-01-6	Trichloroethene	ND		2.2	0.33
78-87-5	1,2-Dichloropropane	ND		2.2	0.43
74-95-3	Dibromomethane	ND		1.1	0.18
75-27-4	Bromodichloromethane	ND		1.1	0.20
10061-01-5	cis-1,3-Dichloropropene	ND		1.1	0.22
108-88-3	Toluene	ND		11	1.4
10061-02-6	trans-1,3-Dichloropropene	ND		11	1.5
79-00-5	1,1,2-Trichloroethane	ND		2.2	0.27
127-18-4	Tetrachloroethene	ND		2.2	0.43
142-28-9	1,3-Dichloropropane	ND		2.2	0.25
124-48-1	Dibromochloromethane	ND		1.6	0.29
106-93-4	1,2-Dibromoethane	ND		1.1	0.22
108-90-7	Chlorobenzene	0.32	J	2.2	0.27
100-41-4	Ethylbenzene	ND		2.2	0.45
630-20-6	1,1,1,2-Tetrachloroethane	ND		3.3	0.64
79-34-5	1,1,2,2-Tetrachloroethane	ND		4.3	0.98
179601-23-1	m-Xylene & p-Xylene	ND		11	1.8



FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87760-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070150 Lab Sample ID: 580-87760-3  
 Matrix: Solid Lab File ID: 073019\_0019.D  
 Analysis Method: 8260C Date Collected: 07/17/2019 16:04  
 Sample wt/vol: 5.802(g) Date Analyzed: 07/30/2019 18:50  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: DB-VRX ID: 0.25 (mm)  
 % Moisture: 20.6 Level: (low/med) Low  
 Analysis Batch No.: 307013 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
95-47-6	o-Xylene	1.2	JQ	5.4	1.0
100-42-5	Styrene	ND		3.3	0.80
75-25-2	Bromoform	ND		5.4	0.91
98-82-8	Isopropylbenzene	0.51	JQ	2.2	0.50
108-86-1	Bromobenzene	ND		11	1.1
103-65-1	N-Propylbenzene	ND		5.4	0.82
96-18-4	1,2,3-Trichloropropane	ND		5.4	1.1
95-49-8	2-Chlorotoluene	ND		5.4	1.0
108-67-8	1,3,5-Trimethylbenzene	3.8	JQ	5.4	0.88
106-43-4	4-Chlorotoluene	ND		5.4	1.1
98-06-6	t-Butylbenzene	ND		3.3	0.72
95-63-6	1,2,4-Trimethylbenzene	3.7	JQ	5.4	1.3
135-98-8	sec-Butylbenzene	1.4	JQ	3.3	0.73
541-73-1	1,3-Dichlorobenzene	ND		5.4	1.2
99-87-6	4-Isopropyltoluene	1.9	JQ	2.2	0.43
106-46-7	1,4-Dichlorobenzene	ND		5.4	1.1
104-51-8	n-Butylbenzene	8.9		3.3	0.68
95-50-1	1,2-Dichlorobenzene	ND		11	1.4
96-12-8	1,2-Dibromo-3-Chloropropane	ND		11	1.7
120-82-1	1,2,4-Trichlorobenzene	ND		2.2	0.46
87-61-6	1,2,3-Trichlorobenzene	ND		3.3	0.65
87-68-3	Hexachlorobutadiene	ND		3.3	0.65
91-20-3	Naphthalene	ND		11	2.0
1634-04-4	Methyl tert-butyl ether	ND		2.2	0.33

CAS NO.	SURROGATE	%REC	Q	LIMITS
2037-26-5	Toluene-d8 (Surr)	99		80-120
460-00-4	4-Bromofluorobenzene (Surr)	104		80-120
1868-53-7	Dibromofluoromethane (Surr)	106		80-120
98-08-8	Trifluorotoluene (Surr)	96		80-120
17060-07-0	1,2-Dichloroethane-d4 (Surr)	122		80-121

*mm 8-2-19*

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87760-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070151 Lab Sample ID: 580-87760-4  
 Matrix: Solid Lab File ID: 073019\_0020.D  
 Analysis Method: 8260C Date Collected: 07/17/2019 16:10  
 Sample wt/vol: 5.319(g) Date Analyzed: 07/30/2019 19:15  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: DB-VRX ID: 0.25 (mm)  
 % Moisture: 22.6 Level: (low/med) Low  
 Analysis Batch No.: 307013 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-71-8	Dichlorodifluoromethane	ND		2.4	0.60
74-87-3	Chloromethane	ND		6.1	1.1
75-01-4	Vinyl chloride	ND		2.4	0.36
74-83-9	Bromomethane	ND		1.2	0.26
75-00-3	Chloroethane	ND		12	1.9
75-69-4	Trichlorofluoromethane	ND		2.4	0.36
75-35-4	1,1-Dichloroethene	ND		6.1	1.3
75-09-2	Methylene Chloride	ND		49	12
156-60-5	trans-1,2-Dichloroethene	ND		2.4	0.49
75-34-3	1,1-Dichloroethane	ND		1.2	0.23
594-20-7	2,2-Dichloropropane	ND		6.1	1.1
156-59-2	cis-1,2-Dichloroethene	ND		3.6	0.73
74-97-5	Bromochloromethane	ND		2.4	0.30
67-66-3	Chloroform	ND		2.4	0.36
71-55-6	1,1,1-Trichloroethane	ND		2.4	0.36
56-23-5	Carbon tetrachloride	ND		2.4	0.36
563-58-6	1,1-Dichloropropene	ND		2.4	0.36
71-43-2	Benzene	ND		2.4	0.47
107-06-2	1,2-Dichloroethane	ND		1.2	0.24
79-01-6	Trichloroethene	ND		2.4	0.36
78-87-5	1,2-Dichloropropane	ND		2.4	0.49
74-95-3	Dibromomethane	ND		1.2	0.21
75-27-4	Bromodichloromethane	ND		1.2	0.22
10061-01-5	cis-1,3-Dichloropropene	ND		1.2	0.24
108-88-3	Toluene	ND		12	1.6
10061-02-6	trans-1,3-Dichloropropene	ND		12	1.7
79-00-5	1,1,2-Trichloroethane	ND		2.4	0.30
127-18-4	Tetrachloroethene	ND		2.4	0.49
142-28-9	1,3-Dichloropropane	ND		2.4	0.28
124-48-1	Dibromochloromethane	ND		1.8	0.33
106-93-4	1,2-Dibromoethane	ND		1.2	0.24
108-90-7	Chlorobenzene	ND		2.4	0.30
100-41-4	Ethylbenzene	ND		2.4	0.50
630-20-6	1,1,1,2-Tetrachloroethane	ND		3.6	0.72
79-34-5	1,1,2,2-Tetrachloroethane	ND		4.9	1.1
179601-23-1	m-Xylene & p-Xylene	ND		12	2.1



FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87760-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070151

Lab Sample ID: 580-87760-4

Matrix: Solid

Lab File ID: 073019\_0020.D

Analysis Method: 8260C

Date Collected: 07/17/2019 16:10

Sample wt/vol: 5.319(g)

Date Analyzed: 07/30/2019 19:15

Soil Aliquot Vol: \_\_\_\_\_

Dilution Factor: 1

Soil Extract Vol.: \_\_\_\_\_

GC Column: DB-VRX ID: 0.25 (mm)

% Moisture: 22.6

Level: (low/med) Low

Analysis Batch No.: 307013

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
95-47-6	o-Xylene	ND		6.1	1.1
100-42-5	Styrene	ND		3.6	0.90
75-25-2	Bromoform	ND		6.1	1.0
98-82-8	Isopropylbenzene	ND		2.4	0.56
108-86-1	Bromobenzene	ND		12	1.2
103-65-1	N-Propylbenzene	ND		6.1	0.92
96-18-4	1,2,3-Trichloropropane	ND		6.1	1.2
95-49-8	2-Chlorotoluene	ND		6.1	1.1
108-67-8	1,3,5-Trimethylbenzene	ND		6.1	0.98
106-43-4	4-Chlorotoluene	ND		6.1	1.2
98-06-6	t-Butylbenzene	ND		3.6	0.80
95-63-6	1,2,4-Trimethylbenzene	ND		6.1	1.5
135-98-8	sec-Butylbenzene	ND		3.6	0.81
541-73-1	1,3-Dichlorobenzene	ND		6.1	1.3
99-87-6	4-Isopropyltoluene	ND		2.4	0.49
106-46-7	1,4-Dichlorobenzene	ND		6.1	1.2
104-51-8	n-Butylbenzene	ND		3.6	0.77
95-50-1	1,2-Dichlorobenzene	ND		12	1.6
96-12-8	1,2-Dibromo-3-Chloropropane	ND		12	1.9
120-82-1	1,2,4-Trichlorobenzene	ND		2.4	0.51
87-61-6	1,2,3-Trichlorobenzene	ND		3.6	0.73
87-68-3	Hexachlorobutadiene	ND		3.6	0.73
91-20-3	Naphthalene	ND		12	2.2
1634-04-4	Methyl tert-butyl ether	ND		2.4	0.36

CAS NO.	SURROGATE	%REC	Q	LIMITS
2037-26-5	Toluene-d8 (Surr)	99		80-120
460-00-4	4-Bromofluorobenzene (Surr)	103		80-120
1868-53-7	Dibromofluoromethane (Surr)	103		80-120
98-08-8	Trifluorotoluene (Surr)	95		80-120
17060-07-0	1,2-Dichloroethane-d4 (Surr)	115		80-121

*MW 8260C*

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87760-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070152 Lab Sample ID: 580-87760-5  
 Matrix: Solid Lab File ID: 073019\_0021.D  
 Analysis Method: 8260C Date Collected: 07/17/2019 16:13  
 Sample wt/vol: 6.076(g) Date Analyzed: 07/30/2019 19:40  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: DB-VRX ID: 0.25 (mm)  
 % Moisture: 18.9 Level: (low/med) Low  
 Analysis Batch No.: 307013 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-71-8	Dichlorodifluoromethane	ND		2.0	0.50
74-87-3	Chloromethane	ND		5.1	0.94
75-01-4	Vinyl chloride	ND		2.0	0.30
74-83-9	Bromomethane	ND		1.0	0.21
75-00-3	Chloroethane	ND		10	1.6
75-69-4	Trichlorofluoromethane	ND		2.0	0.30
75-35-4	1,1-Dichloroethene	ND		5.1	1.1
75-09-2	Methylene Chloride	ND		41	10
156-60-5	trans-1,2-Dichloroethene	ND		2.0	0.41
75-34-3	1,1-Dichloroethane	ND		1.0	0.19
594-20-7	2,2-Dichloropropane	ND		5.1	0.91
156-59-2	cis-1,2-Dichloroethene	ND		3.0	0.61
74-97-5	Bromochloromethane	ND		2.0	0.25
67-66-3	Chloroform	ND		2.0	0.30
71-55-6	1,1,1-Trichloroethane	ND		2.0	0.30
56-23-5	Carbon tetrachloride	ND		2.0	0.30
563-58-6	1,1-Dichloropropene	ND		2.0	0.30
71-43-2	Benzene	ND		2.0	0.40
107-06-2	1,2-Dichloroethane	ND		1.0	0.20
79-01-6	Trichloroethene	ND		2.0	0.30
78-87-5	1,2-Dichloropropane	ND		2.0	0.41
74-95-3	Dibromomethane	ND		1.0	0.17
75-27-4	Bromodichloromethane	ND		1.0	0.18
10061-01-5	cis-1,3-Dichloropropene	ND		1.0	0.20
108-88-3	Toluene	ND		10	1.3
10061-02-6	trans-1,3-Dichloropropene	ND		10	1.4
79-00-5	1,1,2-Trichloroethane	ND		2.0	0.25
127-18-4	Tetrachloroethene	ND		2.0	0.41
142-28-9	1,3-Dichloropropane	ND		2.0	0.23
124-48-1	Dibromochloromethane	ND		1.5	0.27
106-93-4	1,2-Dibromoethane	ND		1.0	0.20
108-90-7	Chlorobenzene	ND		2.0	0.25
100-41-4	Ethylbenzene	ND		2.0	0.42
630-20-6	1,1,1,2-Tetrachloroethane	ND		3.0	0.60
79-34-5	1,1,2,2-Tetrachloroethane	ND		4.1	0.91
179601-23-1	m-Xylene & p-Xylene	ND		10	1.7

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87760-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070152 Lab Sample ID: 580-87760-5  
 Matrix: Solid Lab File ID: 073019\_0021.D  
 Analysis Method: 8260C Date Collected: 07/17/2019 16:13  
 Sample wt/vol: 6.076(g) Date Analyzed: 07/30/2019 19:40  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: DB-VRX ID: 0.25 (mm)  
 % Moisture: 18.9 Level: (low/med) Low  
 Analysis Batch No.: 307013 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
95-47-6	o-Xylene	ND		5.1	0.93
100-42-5	Styrene	ND		3.0	0.75
75-25-2	Bromoform	ND		5.1	0.85
98-82-8	Isopropylbenzene	ND		2.0	0.47
108-86-1	Bromobenzene	ND		10	1.0
103-65-1	N-Propylbenzene	ND		5.1	0.77
96-18-4	1,2,3-Trichloropropane	ND		5.1	1.0
95-49-8	2-Chlorotoluene	ND <i>mu</i>		5.1	0.94
108-67-8	1,3,5-Trimethylbenzene	3.3 J Q		5.1	0.82
106-43-4	4-Chlorotoluene	ND		5.1	1.0
98-06-6	t-Butylbenzene	ND <i>mu</i>		3.0	0.67
95-63-6	1,2,4-Trimethylbenzene	2.6 J Q		5.1	1.2
135-98-8	sec-Butylbenzene	1.2 J Q		3.0	0.68
541-73-1	1,3-Dichlorobenzene	ND <i>mu</i>		5.1	1.1
99-87-6	4-Isopropyltoluene	1.6 J Q		2.0	0.41
106-46-7	1,4-Dichlorobenzene	ND <i>mu</i>		5.1	0.99
104-51-8	n-Butylbenzene	7.2 JK		3.0	0.64
95-50-1	1,2-Dichlorobenzene	ND		10	1.3
96-12-8	1,2-Dibromo-3-Chloropropane	ND		10	1.6
120-82-1	1,2,4-Trichlorobenzene	ND		2.0	0.43
87-61-6	1,2,3-Trichlorobenzene	ND		3.0	0.61
87-68-3	Hexachlorobutadiene	ND <i>mu</i>		3.0	0.61
91-20-3	Naphthalene	ND		10	1.8
1634-04-4	Methyl tert-butyl ether	ND		2.0	0.30

CAS NO.	SURROGATE	%REC	Q	LIMITS
2037-26-5	Toluene-d8 (Surr)	98		80-120
460-00-4	4-Bromofluorobenzene (Surr)	100		80-120
1868-53-7	Dibromofluoromethane (Surr)	98		80-120
98-08-8	Trifluorotoluene (Surr)	95		80-120
17060-07-0	1,2-Dichloroethane-d4 (Surr)	113		80-121

*mu 8-22-19*



FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87760-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070610 Lab Sample ID: 580-87760-9  
 Matrix: Solid Lab File ID: 073019\_0013.D  
 Analysis Method: 8260C Date Collected: 07/17/2019 18:20  
 Sample wt/vol: 5(g) Date Analyzed: 07/30/2019 16:23  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: DB-VRX ID: 0.25 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 307013 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-71-8	Dichlorodifluoromethane	ND		2.0	0.49
74-87-3	Chloromethane	ND		5.0	0.93
75-01-4	Vinyl chloride	ND		2.0	0.30
74-83-9	Bromomethane	ND		1.0	0.21
75-00-3	Chloroethane	ND		10	1.6
75-69-4	Trichlorofluoromethane	ND		2.0	0.30
75-35-4	1,1-Dichloroethene	ND		5.0	1.1
75-09-2	Methylene Chloride	ND		40	9.9
156-60-5	trans-1,2-Dichloroethene	ND		2.0	0.40
75-34-3	1,1-Dichloroethane	ND		1.0	0.19
594-20-7	2,2-Dichloropropane	ND		5.0	0.90
156-59-2	cis-1,2-Dichloroethene	ND		3.0	0.60
74-97-5	Bromochloromethane	ND		2.0	0.25
67-66-3	Chloroform	ND		2.0	0.30
71-55-6	1,1,1-Trichloroethane	ND		2.0	0.30
56-23-5	Carbon tetrachloride	ND		2.0	0.30
563-58-6	1,1-Dichloropropene	ND		2.0	0.30
71-43-2	Benzene	ND		2.0	0.39
107-06-2	1,2-Dichloroethane	ND		1.0	0.20
79-01-6	Trichloroethene	ND		2.0	0.30
78-87-5	1,2-Dichloropropane	ND		2.0	0.40
74-95-3	Dibromomethane	ND		1.0	0.17
75-27-4	Bromodichloromethane	ND		1.0	0.18
10061-01-5	cis-1,3-Dichloropropene	ND		1.0	0.20
108-88-3	Toluene	ND		10	1.3
10061-02-6	trans-1,3-Dichloropropene	ND		10	1.4
79-00-5	1,1,2-Trichloroethane	ND		2.0	0.25
127-18-4	Tetrachloroethene	ND		2.0	0.40
142-28-9	1,3-Dichloropropane	ND		2.0	0.23
124-48-1	Dibromochloromethane	ND		1.5	0.27
106-93-4	1,2-Dibromoethane	ND		1.0	0.20
108-90-7	Chlorobenzene	ND		2.0	0.25
100-41-4	Ethylbenzene	ND		2.0	0.41
630-20-6	1,1,1,2-Tetrachloroethane	ND		3.0	0.59
79-34-5	1,1,2,2-Tetrachloroethane	ND		4.0	0.90
179601-23-1	m-Xylene & p-Xylene	ND		10	1.7

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87760-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070610 Lab Sample ID: 580-87760-9  
 Matrix: Solid Lab File ID: 073019\_0013.D  
 Analysis Method: 8260C Date Collected: 07/17/2019 18:20  
 Sample wt/vol: 5(g) Date Analyzed: 07/30/2019 16:23  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: DB-VRX ID: 0.25(mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 307013 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
95-47-6	o-Xylene	ND		5.0	0.92
100-42-5	Styrene	ND		3.0	0.74
75-25-2	Bromoform	ND		5.0	0.84
98-82-8	Isopropylbenzene	ND		2.0	0.46
108-86-1	Bromobenzene	ND		10	1.0
103-65-1	N-Propylbenzene	ND		5.0	0.76
96-18-4	1,2,3-Trichloropropane	ND		5.0	1.0
95-49-8	2-Chlorotoluene	ND		5.0	0.93
108-67-8	1,3,5-Trimethylbenzene	ND		5.0	0.81
106-43-4	4-Chlorotoluene	ND		5.0	1.0
98-06-6	t-Butylbenzene	ND		3.0	0.66
95-63-6	1,2,4-Trimethylbenzene	ND		5.0	1.2
135-98-8	sec-Butylbenzene	ND		3.0	0.67
541-73-1	1,3-Dichlorobenzene	ND		5.0	1.1
99-87-6	4-Isopropyltoluene	ND		2.0	0.40
106-46-7	1,4-Dichlorobenzene	ND		5.0	0.98
104-51-8	n-Butylbenzene	ND		3.0	0.63
95-50-1	1,2-Dichlorobenzene	ND		10	1.3
96-12-8	1,2-Dibromo-3-Chloropropane	ND		10	1.6
120-82-1	1,2,4-Trichlorobenzene	ND		2.0	0.42
87-61-6	1,2,3-Trichlorobenzene	ND		3.0	0.60
87-68-3	Hexachlorobutadiene	ND		3.0	0.60
91-20-3	Naphthalene	ND		10	1.8
1634-04-4	Methyl tert-butyl ether	ND		2.0	0.30

CAS NO.	SURROGATE	%REC	Q	LIMITS
2037-26-5	Toluene-d8 (Surr)	98		80-120
460-00-4	4-Bromofluorobenzene (Surr)	105		80-120
1868-53-7	Dibromofluoromethane (Surr)	99		80-120
98-08-8	Trifluorotoluene (Surr)	100		80-120
17060-07-0	1,2-Dichloroethane-d4 (Surr)	118		80-121

*mw 8-22-19*






**MEMORANDUM**

DATE: August 22, 2019

TO: Seth Wing, START-IV Project Manager, E & E, Seattle, WA

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington 

SUBJ: **Organic Data Quality Assurance Review, May Creek Removal Action Site, Renton, Washington**

REF: TO: TO-68HE0718F0470 PAN: 1004530.0470.001.01

The data quality assurance review of 5 soil samples collected from the May Creek Removal Action site located in Renton, Washington, has been completed. Analyses for Chlorinated Pesticides (EPA Method 8081) were performed by Test America, Inc., Tacoma, Washington. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Manual Process (S2B/4VM).

The samples were numbered:

19070148      19070149      19070150      19070151      19070152

**Data Qualifications:**

**1. Sample Holding Times: Acceptable.**

The samples were maintained at 0°C to 6°C. The samples were collected on July 17, 2019, extracted on July 30, 2019, and were analyzed by July 31, 2019. There are no holding time limits for Method 8082 PCBs.

**2. Instrument Performance: Acceptable.**

The surrogate retention time percent difference between the initial calibration standards and the remaining standards and samples was within QC limits.

**3. Initial and Continuing Calibration: Satisfactory.**

All initial calibration relative standard deviations (RSDs) were within QC limits. The following continuing calibration verification (CCV) standard associated with batch 580-307126 recovered outside acceptance criteria for % difference for the surrogate Decachlorobiphenyl on the confirmation column only. Since the % recovery is within the acceptance criteria for the surrogate in the CCV and associated samples, no qualifications were applied. There were some high recovery outliers; no actions were taken as these analytes were not detected in the samples.

**4. Blanks: Acceptable.**

A method blank was prepared at the required frequency of every time samples were extracted for

each matrix and for each concentration level, or every 20 samples, whichever is greater, and for each analytical system. No target analytes were detected in the laboratory blanks.

**5. System Monitoring Compounds (SMCs): Satisfactory.**

All recoveries of the SMCs were within QC limits except in samples 19070149 and 19070151. Evidence of matrix interference is present; therefore, no qualifications were required.

**6. Blank Spike (BS) Analyses: Acceptable.**

BS recoveries were within QC limits.

**7. Duplicates: Acceptable.**

Relative Percent Differences (RPDs) of all spike duplicate analytes were within the required control limits.

**8. Compound Identification: Satisfactory.**

All positive sample results were dual-column confirmed with differences between the columns less than 40% except dieldrin in sample 19070148 and 4,4'-DDE in sample 19070152; these positive results were qualified as estimated quantities with an unknown bias (JK).

**9. Target Compound Quantitation and Quantitation Limits: Acceptable.**

Sample results and quantitation limits were correctly calculated.

**10. Laboratory Contact**

No laboratory contact was required.

**11. Overall Assessment**

A total of 105 results were validated in this data memorandum. No sample results were qualified as estimated quantities (J) based on duplicate precision outliers, spike accuracy outliers, holding time outliers, incorrect sample containers, or sample temperature outliers. No sample results were rejected (R).

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result. This updated memorandum provides additional results that weren't provided in the original submittal.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the analytical method(s), the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, and/or the Office of Emergency and Remedial Response Publication "National Functional Guidelines for Superfund Organic Methods Data Review, January 2017". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

H - The sample result is biased high.

J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

- K - The bias of the sample is not known.
- L - The sample result is biased low.
- Q - Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.
- R - The data is rejected and unusable. The analyte may or may not be present in the sample.
- U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.



FORM I  
PESTICIDES ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87760-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070148

Lab Sample ID: 580-87760-1

Matrix: Solid

Lab File ID: 34G31PST19a0016.d

Analysis Method: 8081B

Date Collected: 07/17/2019 15:16

Extraction Method: 3546

Date Extracted: 07/30/2019 09:41

Sample wt/vol: 10.074(g)

Date Analyzed: 07/31/2019 14:44

Con. Extract Vol.: 10(mL)

Dilution Factor: 3

Injection Volume: 1(uL)

GC Column: ZB-CLPest-1 ID: 0.25(mm)

% Moisture: 21.5

GPC Cleanup: (Y/N) N

Analysis Batch No.: 307126

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
309-00-2	Aldrin	ND		11	1.4
319-84-6	alpha-BHC	ND		7.6	0.61
319-85-7	beta-BHC	ND		19	0.95
319-86-8	delta-BHC	ND		11	1.1
58-89-9	gamma-BHC (Lindane)	ND		7.6	2.8
72-54-8	4,4'-DDD	ND		7.6	0.87
50-29-3	4,4'-DDT	ND		7.6	1.4
60-57-1	Dieldrin	1.9	J	7.6	1.3
959-98-8	Endosulfan I	ND		7.6	1.3
33213-65-9	Endosulfan II	ND		7.6	0.99
1031-07-8	Endosulfan sulfate	ND		7.6	1.1
72-20-8	Endrin	ND		7.6	1.8
7421-93-4	Endrin aldehyde	ND		76	18
76-44-8	Heptachlor	ND		11	0.72
1024-57-3	Heptachlor epoxide	ND		11	1.1
72-43-5	Methoxychlor	ND		38	1.4
53494-70-5	Endrin ketone	ND		7.6	1.6
8001-35-2	Toxaphene	ND		380	95
5103-74-2	trans-Chlordane	ND		11	1.2

CAS NO.	SURROGATE	%REC	Q	LIMITS
877-09-8	Tetrachloro-m-xylene	70		50-123
2051-24-3	DCB Decachlorobiphenyl	36		36-136

FORM I  
PESTICIDES ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87760-1  
SDG No.: \_\_\_\_\_  
Client Sample ID: 19070148 Lab Sample ID: 580-87760-1  
Matrix: Solid Lab File ID: 34G31PST19a0016.d  
Analysis Method: 8081B Date Collected: 07/17/2019 15:16  
Extraction Method: 3546 Date Extracted: 07/30/2019 09:41  
Sample wt/vol: 10.074(g) Date Analyzed: 07/31/2019 14:44  
Con. Extract Vol.: 10(mL) Dilution Factor: 3  
Injection Volume: 1(uL) GC Column: ZB-CLPest-2 ID: 0.25(mm)  
% Moisture: 21.5 GPC Cleanup: (Y/N) N  
Analysis Batch No.: 307126 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
72-55-9	4,4'-DDE	ND		7.6	1.4
5103-71-9	cis-Chlordane	ND		7.6	2.8

*Mr 822-19*

FORM I  
PESTICIDES ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87760-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070149

Lab Sample ID: 580-87760-2

Matrix: Solid

Lab File ID: 34G31PST19a0017.d

Analysis Method: 8081B

Date Collected: 07/17/2019 15:44

Extraction Method: 3546

Date Extracted: 07/30/2019 09:41

Sample wt/vol: 10.527(g)

Date Analyzed: 07/31/2019 15:04

Con. Extract Vol.: 10(mL)

Dilution Factor: 3

Injection Volume: 1(uL)

GC Column: ZB-CLPest-1 ID: 0.25(mm)

% Moisture: 21.8

GPC Cleanup: (Y/N) N

Analysis Batch No.: 307126

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
309-00-2	Aldrin	ND		11	1.4
319-84-6	alpha-BHC	ND		7.3	0.58
319-85-7	beta-BHC	ND		18	0.91
319-86-8	delta-BHC	ND		11	1.0
58-89-9	gamma-BHC (Lindane)	ND		7.3	2.7
72-54-8	4,4'-DDD	ND		7.3	0.84
72-55-9	4,4'-DDE	ND		7.3	1.3
50-29-3	4,4'-DDT	ND		7.3	1.3
60-57-1	Dieldrin	2.1	JQ	7.3	1.3
959-98-8	Endosulfan I	ND		7.3	1.2
33213-65-9	Endosulfan II	ND		7.3	0.95
1031-07-8	Endosulfan sulfate	ND		7.3	1.0
72-20-8	Endrin	ND		7.3	1.7
7421-93-4	Endrin aldehyde	ND		73	17
76-44-8	Heptachlor	ND		11	0.69
1024-57-3	Heptachlor epoxide	ND		11	1.1
72-43-5	Methoxychlor	ND		36	1.3
53494-70-5	Endrin ketone	ND		7.3	1.5
8001-35-2	Toxaphene	ND		360	91
5103-71-9	cis-Chlordane	ND		7.3	2.7
5103-74-2	trans-Chlordane	ND		11	1.2

CAS NO.	SURROGATE	%REC	Q	LIMITS
877-09-8	Tetrachloro-m-xylene	74		50-123
2051-24-3	DCB Decachlorobiphenyl	24		36-136

*mw 8-22-19*

FORM I  
PESTICIDES ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87760-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070150

Lab Sample ID: 580-87760-3

Matrix: Solid

Lab File ID: 34G31PST19a0018.d

Analysis Method: 8081B

Date Collected: 07/17/2019 16:04

Extraction Method: 3546

Date Extracted: 07/30/2019 09:41

Sample wt/vol: 10.651(g)

Date Analyzed: 07/31/2019 15:23

Con. Extract Vol.: 10(mL)

Dilution Factor: 3

Injection Volume: 1(uL)

GC Column: ZB-CLPest-1 ID: 0.25(mm)

% Moisture: 20.6

GPC Cleanup: (Y/N) N

Analysis Batch No.: 307126

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
309-00-2	Aldrin	ND		11	1.3
319-84-6	alpha-BHC	ND		7.1	0.57
319-85-7	beta-BHC	ND		18	0.89
319-86-8	delta-BHC	ND		11	0.99
58-89-9	gamma-BHC (Lindane)	ND		7.1	2.7
72-54-8	4,4'-DDD	11		7.1	0.82
72-55-9	4,4'-DDE	6.5	J Q	7.1	1.3
50-29-3	4,4'-DDT	ND		7.1	1.3
60-57-1	Dieldrin	4.3	J Q	7.1	1.2
959-98-8	Endosulfan I	ND		7.1	1.2
33213-65-9	Endosulfan II	ND		7.1	0.92
1031-07-8	Endosulfan sulfate	ND		7.1	0.99
72-20-8	Endrin	ND		7.1	1.7
7421-93-4	Endrin aldehyde	ND		71	17
76-44-8	Heptachlor	ND		11	0.67
1024-57-3	Heptachlor epoxide	ND		11	1.1
72-43-5	Methoxychlor	ND		35	1.3
53494-70-5	Endrin ketone	ND		7.1	1.5
8001-35-2	Toxaphene	ND		350	89
5103-74-2	trans-Chlordane	2.7	J Q	11	1.1

CAS NO.	SURROGATE	%REC	Q	LIMITS
877-09-8	Tetrachloro-m-xylene	83		50-123
2051-24-3	DCB Decachlorobiphenyl	55		36-136

*MW 877-19*

FORM I  
PESTICIDES ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87760-1  
SDG No.: \_\_\_\_\_  
Client Sample ID: 19070150 Lab Sample ID: 580-87760-3  
Matrix: Solid Lab File ID: 34G31PST19a0018.d  
Analysis Method: 8081B Date Collected: 07/17/2019 16:04  
Extraction Method: 3546 Date Extracted: 07/30/2019 09:41  
Sample wt/vol: 10.651(g) Date Analyzed: 07/31/2019 15:23  
Con. Extract Vol.: 10(mL) Dilution Factor: 3  
Injection Volume: 1(uL) GC Column: ZB-CLPest-2 ID: 0.25(mm)  
% Moisture: 20.6 GPC Cleanup: (Y/N) N  
Analysis Batch No.: 307126 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
5103-71-9	cis-Chlordane	<del>MD</del>		7.1	2.7

*mw 8-22-19*



FORM I  
PESTICIDES ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87760-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070151 Lab Sample ID: 580-87760-4  
 Matrix: Solid Lab File ID: 34G31PST19a0019.d  
 Analysis Method: 8081B Date Collected: 07/17/2019 16:10  
 Extraction Method: 3546 Date Extracted: 07/30/2019 09:41  
 Sample wt/vol: 10.282(g) Date Analyzed: 07/31/2019 15:42  
 Con. Extract Vol.: 10(mL) Dilution Factor: 3  
 Injection Volume: 1(uL) GC Column: ZB-CLPest-1 ID: 0.25(mm)  
 % Moisture: 22.6 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 307126 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
309-00-2	Aldrin	ND		11	1.4
319-85-7	beta-BHC	ND		19	0.94
319-86-8	delta-BHC	ND		11	1.1
58-89-9	gamma-BHC (Lindane)	ND		7.5	2.8
72-54-8	4,4'-DDD	ND		7.5	0.87
72-55-9	4,4'-DDE	ND		7.5	1.4
50-29-3	4,4'-DDT	ND		7.5	1.4
60-57-1	Dieldrin	2.3	JQ	7.5	1.3
959-98-8	Endosulfan I	ND		7.5	1.3
33213-65-9	Endosulfan II	ND		7.5	0.98
1031-07-8	Endosulfan sulfate	ND		7.5	1.1
72-20-8	Endrin	ND		7.5	1.8
7421-93-4	Endrin aldehyde	ND		75	18
76-44-8	Heptachlor	ND		11	0.72
1024-57-3	Heptachlor epoxide	ND		11	1.1
72-43-5	Methoxychlor	ND		38	1.4
53494-70-5	Endrin ketone	ND		7.5	1.6
8001-35-2	Toxaphene	ND		380	94
5103-74-2	trans-Chlordane	1.7	JQ	11	1.2

CAS NO.	SURROGATE	%REC	Q	LIMITS
877-09-8	Tetrachloro-m-xylene	89		50-123
2051-24-3	DCB Decachlorobiphenyl	31	mu	36-136

mu 822-19

FORM I  
PESTICIDES ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87760-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070152 Lab Sample ID: 580-87760-5  
 Matrix: Solid Lab File ID: 34G31PST19a0020.d  
 Analysis Method: 8081B Date Collected: 07/17/2019 16:13  
 Extraction Method: 3546 Date Extracted: 07/30/2019 09:41  
 Sample wt/vol: 10.003(g) Date Analyzed: 07/31/2019 16:02  
 Con. Extract Vol.: 10(mL) Dilution Factor: 3  
 Injection Volume: 1(uL) GC Column: ZB-CLPest-1 ID: 0.25(mm)  
 % Moisture: 18.9 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 307126 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
309-00-2	Aldrin	ND		11	1.4
319-84-6	alpha-BHC	ND		7.4	0.59
319-85-7	beta-BHC	ND		18	0.92
319-86-8	delta-BHC	ND		11	1.0
58-89-9	gamma-BHC (Lindane)	ND		7.4	2.8
72-54-8	4,4'-DDD	ND		7.4	0.85
72-55-9	4,4'-DDE	5.3	J	7.4	1.4
50-29-3	4,4'-DDT	ND		7.4	1.4
60-57-1	Dieldrin	4.6	J	7.4	1.3
959-98-8	Endosulfan I	ND		7.4	1.3
33213-65-9	Endosulfan II	ND		7.4	0.96
1031-07-8	Endosulfan sulfate	ND		7.4	1.0
72-20-8	Endrin	ND		7.4	1.7
7421-93-4	Endrin aldehyde	ND		74	18
76-44-8	Heptachlor	ND		11	0.70
1024-57-3	Heptachlor epoxide	ND		11	1.1
72-43-5	Methoxychlor	ND		37	1.4
53494-70-5	Endrin ketone	ND		7.4	1.6
8001-35-2	Toxaphene	ND		370	92
5103-74-2	trans-Chlordane	2.1	J	11	1.2

CAS NO.	SURROGATE	%REC	Q	LIMITS
877-09-8	Tetrachloro-m-xylene	96		50-123
2051-24-3	DCB Decachlorobiphenyl	77		36-136

*mw 8-22-19*

FORM I  
PESTICIDES ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87760-1  
SDG No.: \_\_\_\_\_  
Client Sample ID: 19070152 Lab Sample ID: 580-87760-5  
Matrix: Solid Lab File ID: 34G31PST19a0020.d  
Analysis Method: 8081B Date Collected: 07/17/2019 16:13  
Extraction Method: 3546 Date Extracted: 07/30/2019 09:41  
Sample wt/vol: 10.003(g) Date Analyzed: 07/31/2019 16:02  
Con. Extract Vol.: 10(mL) Dilution Factor: 3  
Injection Volume: 1(uL) GC Column: ZB-CLPest-2 ID: 0.25(mm)  
% Moisture: 18.9 GPC Cleanup: (Y/N) N  
Analysis Batch No.: 307126 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
5103-71-9	cis-Chlordane	<del>ND</del> <i>Ma</i>		7.4 <i>U</i>	2.8

*7/31/19*





## ecology and environment, inc.


Global Environmental Specialists

720 Third Avenue, Suite 1700  
Seattle, Washington 98104  
Tel: (206) 624-9537, Fax: (206) 621-9832

### MEMORANDUM

DATE: August 22, 2019

TO: Seth Wing, START-IV Project Manager, E & E, Seattle, WA

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington 

SUBJ: **Organic Data Quality Assurance Review, May Creek Removal Action Site, Renton, Washington**

REF: TO: TO-68HE0718F0470 PAN: 1004530.0470.001.01

The data quality assurance review of 5 soil samples collected from the May Creek Removal Action site in Renton, Washington, has been completed. Semivolatile Organic Compound (SVOC) analysis (EPA Method 8270) was performed by Test America, Inc., Tacoma, Washington. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Manual Process (S2B/4VM).

The samples were numbered:

19070148      19070149      19070150      19070151      19070152

#### Data Qualifications:

##### **1. Sample Holding Times: Acceptable.**

The samples were maintained and received within the QC limits of 0°C to 6°C. The samples were collected on July 17, 2019, were extracted on July 23, 2019, and were analyzed by July 24, 2019, therefore meeting holding time criteria of less than 14 days between collection and extraction and less than 40 days between extraction and analysis.

##### **2. Tuning: Acceptable.**

Tuning was performed at the beginning of each 12-hour analysis sequence. All results were within QC limits.

##### **3. Initial Calibration: Satisfactory.**

All average Relative Response Factors (RRFs) were within the QC limits except n-nitroso-di-n-propylamine; associated sample quantitation limits were rejected (R). All Relative Standard Deviations (RSDs) were within the QC limits.

##### **4. Continuing Calibration: Satisfactory.**

All RRFs were within the QC limits except as noted above. All % differences were within the QC limits except 4-nitrophenol and 4-nitroaniline with low recoveries; associated positive results and sample quantitation limits were qualified as estimated quantities with a low bias (JL or UJL).

##### **5. Blanks: Acceptable.**

A method blank was analyzed for each 20 sample batch per matrix. There were no detections in any method blank.

**6. System Monitoring Compounds (SMCs): Satisfactory.**

All SMC recoveries were within QC limits except high surrogate recoveries for samples 19070151, 19070152, and the MS and MSD. Evidence of matrix interference was present; therefore, no qualifiers were applied. One low SMC recovery occurred in the method blank; no actions were taken based on this outlier as the other five SMCs were within QC limits.

**7. Matrix Spike (MS)/MS Duplicate (MSD) Analysis: Satisfactory.**

MS and MSD analyses were performed per SDG or per matrix per concentration level, whichever was more frequent. All recoveries were within QC limits except 2,4-Dinitrophenol, 4,6-Dinitro-2-methylphenol, and hexachlorocyclopentadiene failed the recovery criteria low for the MS and butyl benzyl phthalate, di-n-butyl phthalate, di-n-octyl phthalate, and fluoranthene failed the recovery criteria high. For the MSD, 2,4-Dinitrophenol, Hexachlorocyclopentadiene, and Hexachloroethane failed the recovery criteria low and 2,6-Dinitrotoluene, 4,6-Dinitro-2-methylphenol, butyl benzyl phthalate and di-n-octyl phthalate failed the recovery criteria high. According to the laboratory, sample matrix interference and/or non-homogeneity are suspected because the associated BS recoveries were within QC limits. No qualifiers were applied based on these outliers alone.

**8. Blank Spike (BS) Analysis: Acceptable.**

BS and BSD analyses were performed per SDG or per matrix per concentration level, whichever was more frequent. All recoveries were within QC limits.

**9. Duplicate Analysis: Satisfactory.**

Spike duplicate analyses were performed per SDG or per matrix per concentration level, whichever was more frequent. All spike duplicate results were within QC limits except several outliers in the MS and MSD. No qualifiers were applied based on the spike duplicate outliers alone.

**10. Internal Standards: Acceptable.**

All internal standards (IS) were within  $\pm 30$  seconds of the continuing calibration IS retention times. All area counts were within 50 % to 200 % of the continuing calibration area counts.

**11. Performance Evaluation Sample Analysis: Not Provided.**

Performance evaluation samples were not provided to the laboratory.

**12. Overall Assessment of Data for Use**

A total of 335 results were validated in this data memorandum. No sample results were qualified as estimated quantities (J) based on duplicate precision outliers, spike accuracy outliers, holding time outliers, incorrect sample containers, or sample temperature outliers. No sample results were rejected (R).

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the analytical method(s), the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, and/or the Office of

Emergency and Remedial Response Publication "National Functional Guidelines for Superfund Organic Methods Data Review, January 2017". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

#### Data Qualifiers and Definitions

- H - The sample result is biased high.
- J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
- K - The bias of the sample is not known.
- L - The sample result is biased low.
- N - The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification".
- NJ - The analyte has been "tentatively identified" or "presumptively" as present and the associated numerical value is the estimated concentration in the sample.
- Q - Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.
- R - The data is rejected and unusable. The analyte may or may not be present in the sample.
- U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.

FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87760-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070148

Lab Sample ID: 580-87760-1

Matrix: Solid

Lab File ID: 0724B017.D

Analysis Method: 8270D

Date Collected: 07/17/2019 15:16

Extract. Method: 3550B

Date Extracted: 07/23/2019 09:40

Sample wt/vol: 10.380(g)

Date Analyzed: 07/24/2019 20:02

Con. Extract Vol.: 10(mL)

Dilution Factor: 5

Injection Volume: 1(uL)

Level: (low/med) Low

% Moisture: 21.5

GPC Cleanup: (Y/N) N

Analysis Batch No.: 306480

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
108-95-2	Phenol	ND		920	140
111-44-4	Bis(2-chloroethyl)ether	ND		610	47
95-57-8	2-Chlorophenol	ND		1200	80
541-73-1	1,3-Dichlorobenzene	ND		310	29
106-46-7	1,4-Dichlorobenzene	ND		310	51
100-51-6	Benzyl alcohol	ND		3100	470
95-50-1	1,2-Dichlorobenzene	ND		310	74
95-48-7	2-Methylphenol	ND		920	60
15831-10-4	3 & 4 Methylphenol	ND		1200	92
621-64-7	N-Nitrosodi-n-propylamine	ND		1200	140
67-72-1	Hexachloroethane	ND		920	54
98-95-3	Nitrobenzene	ND		1200	120
78-59-1	Isophorone	ND		920	45
88-75-5	2-Nitrophenol	ND		1200	130
105-67-9	2,4-Dimethylphenol	ND		610	92
65-85-0	Benzoic acid	ND		12000	3600
111-91-1	Bis(2-chloroethoxy)methane	ND		1200	110
120-83-2	2,4-Dichlorophenol	ND		610	92
120-82-1	1,2,4-Trichlorobenzene	ND		310	37
91-20-3	Naphthalene	ND		150	31
106-47-8	4-Chloroaniline	ND		9200	2500
87-68-3	Hexachlorobutadiene	ND		310	92
59-50-7	4-Chloro-3-methylphenol	ND		920	200
91-57-6	2-Methylnaphthalene	ND		310	54
77-47-4	Hexachlorocyclopentadiene	ND		610	120
88-06-2	2,4,6-Trichlorophenol	ND		920	220
95-95-4	2,4,5-Trichlorophenol	ND		1200	280
91-58-7	2-Chloronaphthalene	ND		150	31
88-74-4	2-Nitroaniline	ND		610	92
131-11-3	Dimethyl phthalate	ND		920	80
208-96-8	Acenaphthylene	ND		150	31
606-20-2	2,6-Dinitrotoluene	ND		920	210
99-09-2	3-Nitroaniline	ND		1200	250
83-32-9	Acenaphthene	32	JQ	150	31



FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87760-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070148

Lab Sample ID: 580-87760-1

Matrix: Solid

Lab File ID: 0724B017.D

Analysis Method: 8270D

Date Collected: 07/17/2019 15:16

Extract. Method: 3550B

Date Extracted: 07/23/2019 09:40

Sample wt/vol: 10.380(g)

Date Analyzed: 07/24/2019 20:02

Con. Extract Vol.: 10(mL)

Dilution Factor: 5

Injection Volume: 1(uL)

Level: (low/med) Low

% Moisture: 21.5

GPC Cleanup: (Y/N) N

Analysis Batch No.: 306480

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
51-28-5	2,4-Dinitrophenol	ND		6100	1200
100-02-7	4-Nitrophenol	ND		9200	2300
132-64-9	Dibenzofuran	ND		920	36
121-14-2	2,4-Dinitrotoluene	ND		1200	260
84-66-2	Diethyl phthalate	ND		9200	470
7005-72-3	4-Chlorophenyl phenyl ether	ND		1200	39
86-73-7	Fluorene	ND		150	31
100-01-6	4-Nitroaniline	ND		920	310
534-52-1	4,6-Dinitro-2-methylphenol	ND		6100	610
86-30-6	N-Nitrosodiphenylamine	ND		370	49
101-55-3	4-Bromophenyl phenyl ether	ND		1200	56
118-74-1	Hexachlorobenzene	ND		310	92
87-86-5	Pentachlorophenol	ND		2800	810
85-01-8	Phenanthrene	330	JQ	370	74
120-12-7	Anthracene	56	JQ	150	31
84-74-2	Di-n-butyl phthalate	ND		3100	350
206-44-0	Fluoranthene	670		150	31
129-00-0	Pyrene	660		370	39
85-68-7	Butyl benzyl phthalate	500	JQ	1200	310
91-94-1	3,3'-Dichlorobenzidine	ND		2500	610
56-55-3	Benzo[a]anthracene	200		150	31
218-01-9	Chrysene	370		370	80
117-81-7	Bis(2-ethylhexyl) phthalate	1000	JQ	3700	440
117-84-0	Di-n-octyl phthalate	ND		920	350
50-32-8	Benzo[a]pyrene	230	JQ	370	80
193-39-5	Indeno[1,2,3-cd]pyrene	260		250	31
53-70-3	Dibenz(a,h)anthracene	ND		310	74
191-24-2	Benzo[g,h,i]perylene	270	JQ	370	55
86-74-8	Carbazole	ND		920	50
90-12-0	1-Methylnaphthalene	ND		180	31
205-99-2	Benzo[b]fluoranthene	320		150	31
207-08-9	Benzo[k]fluoranthene	110	JQ	370	86
108-60-1	bis(chloroisopropyl) ether	ND		1200	86

*MW 822-10*

FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87760-1  
SDG No.: \_\_\_\_\_  
Client Sample ID: 19070148 Lab Sample ID: 580-87760-1  
Matrix: Solid Lab File ID: 0724B017.D  
Analysis Method: 8270D Date Collected: 07/17/2019 15:16  
Extract. Method: 3550B Date Extracted: 07/23/2019 09:40  
Sample wt/vol: 10.380(g) Date Analyzed: 07/24/2019 20:02  
Con. Extract Vol.: 10(mL) Dilution Factor: 5  
Injection Volume: 1(uL) Level: (low/med) Low  
% Moisture: 21.5 GPC Cleanup: (Y/N) N  
Analysis Batch No.: 306480 Units: ug/Kg

CAS NO.	SURROGATE	%REC	Q	LIMITS
367-12-4	2-Fluorophenol (Surr)	77		60-125
4165-62-2	Phenol-d5 (Surr)	73		59-120
4165-60-0	Nitrobenzene-d5 (Surr)	83		62-120
321-60-8	2-Fluorobiphenyl	86		57-120
118-79-6	2,4,6-Tribromophenol (Surr)	96		52-125
1718-51-0	Terphenyl-d14 (Surr)	113		58-120

NW 822-19

FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87760-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070149 Lab Sample ID: 580-87760-2  
 Matrix: Solid Lab File ID: 0724B018.D  
 Analysis Method: 8270D Date Collected: 07/17/2019 15:44  
 Extract. Method: 3550B Date Extracted: 07/23/2019 09:40  
 Sample wt/vol: 10.965(g) Date Analyzed: 07/24/2019 20:26  
 Con. Extract Vol.: 10(mL) Dilution Factor: 10  
 Injection Volume: 1(uL) Level: (low/med) Low  
 % Moisture: 21.8 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 306480 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
108-95-2	Phenol	ND		1700	270
111-44-4	Bis(2-chloroethyl)ether	ND		1200	90
95-57-8	2-Chlorophenol	ND		2300	150
541-73-1	1,3-Dichlorobenzene	ND		580	56
106-46-7	1,4-Dichlorobenzene	ND		580	97
100-51-6	Benzyl alcohol	ND		5800	900
95-50-1	1,2-Dichlorobenzene	ND		580	140
95-48-7	2-Methylphenol	ND		1700	110
15831-10-4	3 & 4 Methylphenol	ND		2300	170
621-64-7	N-Nitrosodi-n-propylamine	ND		2300	260
67-72-1	Hexachloroethane	ND		1700	100
98-95-3	Nitrobenzene	ND		2300	230
78-59-1	Isophorone	ND		1700	86
88-75-5	2-Nitrophenol	ND		2300	240
105-67-9	2,4-Dimethylphenol	ND		1200	170
65-85-0	Benzoic acid	ND		23000	6800
111-91-1	Bis(2-chloroethoxy)methane	ND		2300	210
120-83-2	2,4-Dichlorophenol	ND		1200	170
120-82-1	1,2,4-Trichlorobenzene	ND		580	70
91-20-3	Naphthalene	ND		290	58
106-47-8	4-Chloroaniline	ND		17000	4700
87-68-3	Hexachlorobutadiene	ND		580	170
59-50-7	4-Chloro-3-methylphenol	ND		1700	380
91-57-6	2-Methylnaphthalene	ND		580	100
77-47-4	Hexachlorocyclopentadiene	ND		1200	230
88-06-2	2,4,6-Trichlorophenol	ND		1700	420
95-95-4	2,4,5-Trichlorophenol	ND		2300	520
91-58-7	2-Chloronaphthalene	ND		290	58
88-74-4	2-Nitroaniline	ND		1200	170
131-11-3	Dimethyl phthalate	ND		1700	150
208-96-8	Acenaphthylene	ND		290	58
606-20-2	2,6-Dinitrotoluene	ND		1700	400
99-09-2	3-Nitroaniline	ND		2300	470
83-32-9	Acenaphthene	ND		290	58



FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87760-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070149

Lab Sample ID: 580-87760-2

Matrix: Solid

Lab File ID: 0724B018.D

Analysis Method: 8270D

Date Collected: 07/17/2019 15:44

Extract. Method: 3550B

Date Extracted: 07/23/2019 09:40

Sample wt/vol: 10.965(g)

Date Analyzed: 07/24/2019 20:26

Con. Extract Vol.: 10(mL)

Dilution Factor: 10

Injection Volume: 1(uL)

Level: (low/med) Low

% Moisture: 21.8

GPC Cleanup: (Y/N) N

Analysis Batch No.: 306480

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
51-28-5	2,4-Dinitrophenol	ND		12000	2300
100-02-7	4-Nitrophenol	ND		17000	4300
132-64-9	Dibenzofuran	ND		1700	69
121-14-2	2,4-Dinitrotoluene	ND		2300	500
84-66-2	Diethyl phthalate	ND		17000	890
7005-72-3	4-Chlorophenyl phenyl ether	ND		2300	73
86-73-7	Fluorene	ND		290	58
100-01-6	4-Nitroaniline	ND		1700	580
534-52-1	4,6-Dinitro-2-methylphenol	ND		12000	1200
86-30-6	N-Nitrosodiphenylamine	ND		700	93
101-55-3	4-Bromophenyl phenyl ether	ND		2300	110
118-74-1	Hexachlorobenzene	ND		580	170
87-86-5	Pentachlorophenol	ND		5200	1500
85-01-8	Phenanthrene	170	J Q	700	140
120-12-7	Anthracene	66	J Q	290	58
84-74-2	Di-n-butyl phthalate	ND		5800	660
206-44-0	Fluoranthene	590		290	58
129-00-0	Pyrene	630	J Q	700	75
85-68-7	Butyl benzyl phthalate	990	J Q	2300	590
91-94-1	3,3'-Dichlorobenzidine	ND		4700	1200
56-55-3	Benzo[a]anthracene	230	J Q	290	58
218-01-9	Chrysene	420	J	700	150
117-81-7	Bis(2-ethylhexyl) phthalate	840	J	7000	830
117-84-0	Di-n-octyl phthalate	ND		1700	660
50-32-8	Benzo[a]pyrene	270	J Q	700	150
193-39-5	Indeno[1,2,3-cd]pyrene	270	J	470	58
53-70-3	Dibenz(a,h)anthracene	ND		580	140
191-24-2	Benzo[g,h,i]perylene	210	J Q	700	100
86-74-8	Carbazole	ND		1700	96
90-12-0	1-Methylnaphthalene	ND		350	58
205-99-2	Benzo[b]fluoranthene	350		290	58
207-08-9	Benzo[k]fluoranthene	190	J Q	700	160
108-60-1	bis(chloroisopropyl) ether	ND		2300	160

*Mw 8-22-19*



FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87760-1  
SDG No.: \_\_\_\_\_  
Client Sample ID: 19070149 Lab Sample ID: 580-87760-2  
Matrix: Solid Lab File ID: 0724B018.D  
Analysis Method: 8270D Date Collected: 07/17/2019 15:44  
Extract. Method: 3550B Date Extracted: 07/23/2019 09:40  
Sample wt/vol: 10.965(g) Date Analyzed: 07/24/2019 20:26  
Con. Extract Vol.: 10(mL) Dilution Factor: 10  
Injection Volume: 1(uL) Level: (low/med) Low  
% Moisture: 21.8 GPC Cleanup: (Y/N) N  
Analysis Batch No.: 306480 Units: ug/Kg

CAS NO.	SURROGATE	%REC	Q	LIMITS
367-12-4	2-Fluorophenol (Surr)	86		60-125
4165-62-2	Phenol-d5 (Surr)	77		59-120
4165-60-0	Nitrobenzene-d5 (Surr)	88		62-120
321-60-8	2-Fluorobiphenyl	98		57-120
118-79-6	2,4,6-Tribromophenol (Surr)	103		52-125
1718-51-0	Terphenyl-d14 (Surr)	107		58-120

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FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87760-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070150

Lab Sample ID: 580-87760-3

Matrix: Solid

Lab File ID: 0724B019.D

Analysis Method: 8270D

Date Collected: 07/17/2019 16:04

Extract. Method: 3550B

Date Extracted: 07/23/2019 09:40

Sample wt/vol: 11.997(g)

Date Analyzed: 07/24/2019 20:50

Con. Extract Vol.: 10 (mL)

Dilution Factor: 5

Injection Volume: 1 (uL)

Level: (low/med) Low

% Moisture: 20.6

GPC Cleanup: (Y/N) N

Analysis Batch No.: 306480

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
108-95-2	Phenol	ND		790	120
111-44-4	Bis(2-chloroethyl) ether	ND		520	40
95-57-8	2-Chlorophenol	ND		1000	68
541-73-1	1,3-Dichlorobenzene	ND		260	25
106-46-7	1,4-Dichlorobenzene	ND		260	44
100-51-6	Benzyl alcohol	ND		2600	400
95-50-1	1,2-Dichlorobenzene	ND		260	63
95-48-7	2-Methylphenol	ND		790	51
15831-10-4	3 & 4 Methylphenol	ND		1000	79
621-64-7	N-Nitrosodi-n-propylamine	ND		1000	120
67-72-1	Hexachloroethane	ND		790	46
98-95-3	Nitrobenzene	ND		1000	100
78-59-1	Isophorone	ND		790	39
88-75-5	2-Nitrophenol	ND		1000	110
105-67-9	2,4-Dimethylphenol	ND		520	79
65-85-0	Benzoic acid	ND		10000	3000
111-91-1	Bis(2-chloroethoxy)methane	ND		1000	94
120-83-2	2,4-Dichlorophenol	ND		520	79
120-82-1	1,2,4-Trichlorobenzene	ND		260	31
91-20-3	Naphthalene	ND		130	26
106-47-8	4-Chloroaniline	ND		7900	2100
87-68-3	Hexachlorobutadiene	ND		260	79
59-50-7	4-Chloro-3-methylphenol	ND		790	170
91-57-6	2-Methylnaphthalene	65	JQ	260	46
77-47-4	Hexachlorocyclopentadiene	ND		520	100
88-06-2	2,4,6-Trichlorophenol	ND		790	190
95-95-4	2,4,5-Trichlorophenol	ND		1000	240
91-58-7	2-Chloronaphthalene	ND		130	26
88-74-4	2-Nitroaniline	ND		520	79
131-11-3	Dimethyl phthalate	ND		790	68
208-96-8	Acenaphthylene	ND		130	26
606-20-2	2,6-Dinitrotoluene	ND		790	180
99-09-2	3-Nitroaniline	ND		1000	210
83-32-9	Acenaphthene	ND		130	26

FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87760-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070150

Lab Sample ID: 580-87760-3

Matrix: Solid

Lab File ID: 0724B019.D

Analysis Method: 8270D

Date Collected: 07/17/2019 16:04

Extract. Method: 3550B

Date Extracted: 07/23/2019 09:40

Sample wt/vol: 11.997(g)

Date Analyzed: 07/24/2019 20:50

Con. Extract Vol.: 10(mL)

Dilution Factor: 5

Injection Volume: 1(uL)

Level: (low/med) Low

% Moisture: 20.6

GPC Cleanup: (Y/N) N

Analysis Batch No.: 306480

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
51-28-5	2,4-Dinitrophenol	ND		5200	1000
100-02-7	4-Nitrophenol	ND		7900	1900
132-64-9	Dibenzofuran	ND		790	31
121-14-2	2,4-Dinitrotoluene	ND		1000	230
84-66-2	Diethyl phthalate	ND		7900	400
7005-72-3	4-Chlorophenyl phenyl ether	ND		1000	33
86-73-7	Fluorene	ND		130	26
100-01-6	4-Nitroaniline	ND		790	260
534-52-1	4,6-Dinitro-2-methylphenol	ND		5200	520
86-30-6	N-Nitrosodiphenylamine	ND		310	42
101-55-3	4-Bromophenyl phenyl ether	ND		1000	48
118-74-1	Hexachlorobenzene	ND		260	79
87-86-5	Pentachlorophenol	ND		2400	690
85-01-8	Phenanthrene	ND		310	63
120-12-7	Anthracene	ND		130	26
84-74-2	Di-n-butyl phthalate	ND		2600	300
206-44-0	Fluoranthene	100	J Q	130	26
129-00-0	Pyrene	150	J Q	310	34
85-68-7	Butyl benzyl phthalate	ND		1000	270
91-94-1	3,3'-Dichlorobenzidine	ND		2100	520
56-55-3	Benzo[a]anthracene	ND		130	26
218-01-9	Chrysene	ND		310	68
117-81-7	Bis(2-ethylhexyl) phthalate	560	J Q	3100	370
117-84-0	Di-n-octyl phthalate	ND		790	300
50-32-8	Benzo[a]pyrene	ND		310	68
193-39-5	Indeno[1,2,3-cd]pyrene	ND		210	26
53-70-3	Dibenz(a,h)anthracene	ND		260	63
191-24-2	Benzo[g,h,i]perylene	77	J Q	310	47
86-74-8	Carbazole	ND		790	43
90-12-0	1-Methylnaphthalene	81	J Q	160	26
205-99-2	Benzo[b]fluoranthene	ND		130	26
207-08-9	Benzo[k]fluoranthene	ND		310	73
108-60-1	bis(chloroisopropyl) ether	ND		1000	73

FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87760-1  
SDG No.: \_\_\_\_\_  
Client Sample ID: 19070150 Lab Sample ID: 580-87760-3  
Matrix: Solid Lab File ID: 0724B019.D  
Analysis Method: 8270D Date Collected: 07/17/2019 16:04  
Extract. Method: 3550B Date Extracted: 07/23/2019 09:40  
Sample wt/vol: 11.997(g) Date Analyzed: 07/24/2019 20:50  
Con. Extract Vol.: 10(mL) Dilution Factor: 5  
Injection Volume: 1(uL) Level: (low/med) Low  
% Moisture: 20.6 GPC Cleanup: (Y/N) N  
Analysis Batch No.: 306480 Units: ug/Kg

CAS NO.	SURROGATE	%REC	Q	LIMITS
367-12-4	2-Fluorophenol (Surr)	88		60-125
4165-62-2	Phenol-d5 (Surr)	73		59-120
4165-60-0	Nitrobenzene-d5 (Surr)	93		62-120
321-60-8	2-Fluorobiphenyl	92		57-120
118-79-6	2,4,6-Tribromophenol (Surr)	102		52-125
1718-51-0	Terphenyl-d14 (Surr)	113		58-120

*MW 822-19*

FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87760-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070151

Lab Sample ID: 580-87760-4

Matrix: Solid

Lab File ID: 0724B020.D

Analysis Method: 8270D

Date Collected: 07/17/2019 16:10

Extract. Method: 3550B

Date Extracted: 07/23/2019 09:40

Sample wt/vol: 11.170(g)

Date Analyzed: 07/24/2019 21:14

Con. Extract Vol.: 10(mL)

Dilution Factor: 10

Injection Volume: 1(uL)

Level: (low/med) Low

% Moisture: 22.6

GPC Cleanup: (Y/N) N

Analysis Batch No.: 306480

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
108-95-2	Phenol	ND		1700	270
111-44-4	Bis(2-chloroethyl)ether	ND		1200	89
95-57-8	2-Chlorophenol	ND		2300	150
541-73-1	1,3-Dichlorobenzene	ND		580	56
106-46-7	1,4-Dichlorobenzene	ND		580	96
100-51-6	Benzyl alcohol	ND		5800	890
95-50-1	1,2-Dichlorobenzene	ND		580	140
95-48-7	2-Methylphenol	ND		1700	110
15831-10-4	3 & 4 Methylphenol	ND		2300	170
621-64-7	N-Nitrosodi-n-propylamine	ND		2300	250
67-72-1	Hexachloroethane	ND		1700	100
98-95-3	Nitrobenzene	ND		2300	230
78-59-1	Isophorone	ND		1700	86
88-75-5	2-Nitrophenol	ND		2300	240
105-67-9	2,4-Dimethylphenol	ND		1200	170
65-85-0	Benzoic acid	ND		23000	6700
111-91-1	Bis(2-chloroethoxy)methane	ND		2300	210
120-83-2	2,4-Dichlorophenol	ND		1200	170
120-82-1	1,2,4-Trichlorobenzene	ND		580	69
91-20-3	Naphthalene	ND		290	58
106-47-8	4-Chloroaniline	ND		17000	4600
87-68-3	Hexachlorobutadiene	ND		580	170
59-50-7	4-Chloro-3-methylphenol	ND		1700	380
91-57-6	2-Methylnaphthalene	ND		580	100
77-47-4	Hexachlorocyclopentadiene	ND		1200	230
88-06-2	2,4,6-Trichlorophenol	ND		1700	420
95-95-4	2,4,5-Trichlorophenol	ND		2300	520
91-58-7	2-Chloronaphthalene	ND		290	58
88-74-4	2-Nitroaniline	ND		1200	170
131-11-3	Dimethyl phthalate	ND		1700	150
208-96-8	Acenaphthylene	ND		290	58
606-20-2	2,6-Dinitrotoluene	ND		1700	390
99-09-2	3-Nitroaniline	ND		2300	460
83-32-9	Acenaphthene	ND		290	58

FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87760-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070151

Lab Sample ID: 580-87760-4

Matrix: Solid

Lab File ID: 0724B020.D

Analysis Method: 8270D

Date Collected: 07/17/2019 16:10

Extract. Method: 3550B

Date Extracted: 07/23/2019 09:40

Sample wt/vol: 11.170(g)

Date Analyzed: 07/24/2019 21:14

Con. Extract Vol.: 10(mL)

Dilution Factor: 10

Injection Volume: 1(uL)

Level: (low/med) Low

% Moisture: 22.6

GPC Cleanup: (Y/N) N

Analysis Batch No.: 306480

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
51-28-5	2,4-Dinitrophenol	ND		12000	2300
100-02-7	4-Nitrophenol	ND		17000	4300
132-64-9	Dibenzofuran	ND		1700	68
121-14-2	2,4-Dinitrotoluene	ND		2300	500
84-66-2	Diethyl phthalate	ND		17000	880
7005-72-3	4-Chlorophenyl phenyl ether	ND		2300	73
86-73-7	Fluorene	ND		290	58
100-01-6	4-Nitroaniline	ND		1700	580
534-52-1	4,6-Dinitro-2-methylphenol	ND		12000	1200
86-30-6	N-Nitrosodiphenylamine	ND		690	93
101-55-3	4-Bromophenyl phenyl ether	ND		2300	110
118-74-1	Hexachlorobenzene	ND		580	170
87-86-5	Pentachlorophenol	ND		5200	1500
85-01-8	Phenanthrene	350	J Q	690	140
120-12-7	Anthracene	140	J	290	58
84-74-2	Di-n-butyl phthalate	2200	J	5800	660
206-44-0	Fluoranthene	850		290	58
129-00-0	Pyrene	900		690	74
85-68-7	Butyl benzyl phthalate	ND		2300	590
91-94-1	3,3'-Dichlorobenzidine	ND		4600	1200
56-55-3	Benzo[a]anthracene	310		290	58
218-01-9	Chrysene	520	J Q	690	150
117-81-7	Bis(2-ethylhexyl) phthalate	1100	J Q	6900	820
117-84-0	Di-n-octyl phthalate	ND		1700	660
50-32-8	Benzo[a]pyrene	340	J Q	690	150
193-39-5	Indeno[1,2,3-cd]pyrene	400	J Q	460	58
53-70-3	Dibenz(a,h)anthracene	ND		580	140
191-24-2	Benzo[g,h,i]perylene	330	J Q	690	100
86-74-8	Carbazole	ND		1700	95
90-12-0	1-Methylnaphthalene	ND		350	58
205-99-2	Benzo[b]fluoranthene	520		290	58
207-08-9	Benzo[k]fluoranthene	220	J Q	690	160
108-60-1	bis(chloroisopropyl) ether	ND		2300	160

*MW 8/22/19*

FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87760-1  
SDG No.: \_\_\_\_\_  
Client Sample ID: 19070151 Lab Sample ID: 580-87760-4  
Matrix: Solid Lab File ID: 0724B020.D  
Analysis Method: 8270D Date Collected: 07/17/2019 16:10  
Extract. Method: 3550B Date Extracted: 07/23/2019 09:40  
Sample wt/vol: 11.170(g) Date Analyzed: 07/24/2019 21:14  
Con. Extract Vol.: 10(mL) Dilution Factor: 10  
Injection Volume: 1(uL) Level: (low/med) Low  
% Moisture: 22.6 GPC Cleanup: (Y/N) N  
Analysis Batch No.: 306480 Units: ug/Kg

CAS NO.	SURROGATE	%REC	Q	LIMITS
367-12-4	2-Fluorophenol (Surr)	90		60-125
4165-62-2	Phenol-d5 (Surr)	82		59-120
4165-60-0	Nitrobenzene-d5 (Surr)	91		62-120
321-60-8	2-Fluorobiphenyl	102		57-120
118-79-6	2,4,6-Tribromophenol (Surr)	129		52-125
1718-51-0	Terphenyl-d14 (Surr)	134		58-120

*MW 8270*



FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87760-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070152

Lab Sample ID: 580-87760-5

Matrix: Solid

Lab File ID: 0724B021.D

Analysis Method: 8270D

Date Collected: 07/17/2019 16:13

Extract. Method: 3550B

Date Extracted: 07/23/2019 09:40

Sample wt/vol: 11.375(g)

Date Analyzed: 07/24/2019 21:38

Con. Extract Vol.: 10(mL)

Dilution Factor: 10

Injection Volume: 1(uL)

Level: (low/med) Low

% Moisture: 18.9

GPC Cleanup: (Y/N) N

Analysis Batch No.: 306480

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
108-95-2	Phenol	ND		1600	250
111-44-4	Bis(2-chloroethyl)ether	ND		1100	83
95-57-8	2-Chlorophenol	ND		2200	140
541-73-1	1,3-Dichlorobenzene	ND		540	52
106-46-7	1,4-Dichlorobenzene	ND		540	90
100-51-6	Benzyl alcohol	ND	PMU	5400	830
95-50-1	1,2-Dichlorobenzene	ND		540	130
95-48-7	2-Methylphenol	ND		1600	110
15831-10-4	3 & 4 Methylphenol	ND		2200	160
621-64-7	N-Nitrosodi-n-propylamine	ND		2200	240
67-72-1	Hexachloroethane	ND	PMU	1600	95
98-95-3	Nitrobenzene	ND		2200	220
78-59-1	Isophorone	ND		1600	80
88-75-5	2-Nitrophenol	ND		2200	230
105-67-9	2,4-Dimethylphenol	ND		1100	160
65-85-0	Benzoic acid	ND		22000	6300
111-91-1	Bis(2-chloroethoxy)methane	ND		2200	200
120-83-2	2,4-Dichlorophenol	ND		1100	160
120-82-1	1,2,4-Trichlorobenzene	ND		540	65
91-20-3	Naphthalene	ND	PMU	270	54
106-47-8	4-Chloroaniline	ND		16000	4300
87-68-3	Hexachlorobutadiene	ND		540	160
59-50-7	4-Chloro-3-methylphenol	ND	PMU	1600	360
91-57-6	2-Methylnaphthalene	220	JG	540	95
77-47-4	Hexachlorocyclopentadiene	ND	F1	1100	220
88-06-2	2,4,6-Trichlorophenol	ND	F2	1600	390
95-95-4	2,4,5-Trichlorophenol	ND	F2	2200	490
91-58-7	2-Chloronaphthalene	ND	F2	270	54
88-74-4	2-Nitroaniline	ND	F2	1100	160
131-11-3	Dimethyl phthalate	ND	F2	1600	140
208-96-8	Acenaphthylene	ND	F2	270	54
606-20-2	2,6-Dinitrotoluene	ND	F1 F2	1600	370
99-09-2	3-Nitroaniline	ND	F2	2200	430
83-32-9	Acenaphthene	ND	PMU	270	54

*Handwritten:* MW 822-19



FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87760-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070152

Lab Sample ID: 580-87760-5

Matrix: Solid

Lab File ID: 0724B021.D

Analysis Method: 8270D

Date Collected: 07/17/2019 16:13

Extract. Method: 3550B

Date Extracted: 07/23/2019 09:40

Sample wt/vol: 11.375(g)

Date Analyzed: 07/24/2019 21:38

Con. Extract Vol.: 10(mL)

Dilution Factor: 10

Injection Volume: 1(uL)

Level: (low/med) Low

% Moisture: 18.9

GPC Cleanup: (Y/N) N

Analysis Batch No.: 306480

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
51-28-5	2,4-Dinitrophenol	ND	F1	11000	2200
100-02-7	4-Nitrophenol	ND		16000	4000
132-64-9	Dibenzofuran	ND	F2	1600	64
121-14-2	2,4-Dinitrotoluene	ND		2200	470
84-66-2	Diethyl phthalate	ND		16000	820
7005-72-3	4-Chlorophenyl phenyl ether	ND		2200	68
86-73-7	Fluorene	ND		270	54
100-01-6	4-Nitroaniline	ND	F2	1600	540
534-52-1	4,6-Dinitro-2-methylphenol	ND	F1	11000	1100
86-30-6	N-Nitrosodiphenylamine	ND		650	87
101-55-3	4-Bromophenyl phenyl ether	ND		2200	99
118-74-1	Hexachlorobenzene	ND		540	160
87-86-5	Pentachlorophenol	ND		4900	1400
85-01-8	Phenanthrene	ND		650	130
120-12-7	Anthracene	ND		270	54
84-74-2	Di-n-butyl phthalate	ND	F1	5400	620
206-44-0	Fluoranthene	ND	F1	270	54
129-00-0	Pyrene	200	J	650	69
85-68-7	Butyl benzyl phthalate	ND	F1	2200	550
91-94-1	3,3'-Dichlorobenzidine	ND		4300	1100
56-55-3	Benzo[a]anthracene	ND		270	54
218-01-9	Chrysene	ND		650	140
117-81-7	Bis(2-ethylhexyl) phthalate	790	J	6500	770
117-84-0	Di-n-octyl phthalate	ND	F1	1600	620
50-32-8	Benzo[a]pyrene	ND		650	140
193-39-5	Indeno[1,2,3-cd]pyrene	ND		430	54
53-70-3	Dibenz(a,h)anthracene	ND		540	130
191-24-2	Benzo[g,h,i]perylene	ND		650	98
86-74-8	Carbazole	ND		1600	89
90-12-0	1-Methylnaphthalene	260	J	330	54
205-99-2	Benzo[b]fluoranthene	ND		270	54
207-08-9	Benzo[k]fluoranthene	ND		650	150
108-60-1	bis(chloroisopropyl) ether	ND		2200	150

FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87760-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070152 Lab Sample ID: 580-87760-5  
 Matrix: Solid Lab File ID: 0724B021.D  
 Analysis Method: 8270D Date Collected: 07/17/2019 16:13  
 Extract. Method: 3550B Date Extracted: 07/23/2019 09:40  
 Sample wt/vol: 11.375(g) Date Analyzed: 07/24/2019 21:38  
 Con. Extract Vol.: 10(mL) Dilution Factor: 10  
 Injection Volume: 1(uL) Level: (low/med) Low  
 % Moisture: 18.9 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 306480 Units: ug/Kg

CAS NO.	SURROGATE	%REC	Q	LIMITS
367-12-4	2-Fluorophenol (Surr)	88		60-125
4165-62-2	Phenol-d5 (Surr)	82		59-120
4165-60-0	Nitrobenzene-d5 (Surr)	126	X	62-120
321-60-8	2-Fluorobiphenyl	90		57-120
118-79-6	2,4,6-Tribromophenol (Surr)	126	X	52-125
1718-51-0	Terphenyl-d14 (Surr)	135	X	58-120

*hwn*

*Mu  
8/2/19*



## ecology and environment, inc.

Global Environmental Specialists

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### MEMORANDUM

DATE: January 8, 2020

TO: Seth Wing, START-IV Project Manager, E & E, Seattle, WA

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington *MW*

SUBJ: **Inorganic Data Quality Assurance Review, May Creek Removal Action Site, Renton, Washington**

REF: TO: TO-68HE0718F0470 PAN: 1004530.0470.001.01

The data quality assurance review of 5 soil samples collected from the May Creek Removal Action site in Renton, Washington, has been completed. Target Analyte List (TAL) metals analyses (EPA Methods 6010 and 7471) were performed by Test America, Inc., Spokane, Washington. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Manual Process (S2B/4VM).

The samples were numbered:

19070148      19070149      19070150      19070151      19070152

#### Data Qualifications:

##### 1. **Sample Holding Times: Acceptable.**

The samples were maintained at  $< 6^{\circ}\text{C}$  (only applies to mercury). The samples were collected on July 17, 2019, and were analyzed by July 22, 2019, therefore meeting QC criteria of less than 6 months between collection, extraction, and analysis (28 days for mercury).

##### 2. **Initial and Continuing Calibration: Satisfactory.**

A minimum of one calibration standard and a blank were analyzed at the beginning of the ICP analysis sequence and after every 10 samples. No results were greater than 110% of the highest calibration standard. All ICP recoveries were within the QC limits except one high antimony recovery; no qualifiers were applied as antimony was not detected in any samples. All AA recoveries were within QC limits and the initial calibration correlation coefficient was  $> 0.995$ .

##### 3. **Blanks: Satisfactory.**

A preparation blank was analyzed for each 20 samples or per matrix per concentration level. Blanks were analyzed after each Initial or Continuing Calibration Verification. There were no detections in any blanks that potentially affected sample results except beryllium associated with samples 19070150, 19070151, and 19070152; positive sample results less than the reporting limit were qualified as not detected (U) at the reporting limit.

##### 4. **ICP Interference Check Sample: Acceptable.**

An Interference Check Sample (ICS) was analyzed at the beginning of each sequence or at least twice every 8 hours, whichever was more frequent. All applicable ICS (solution AB) results were within QC limits of 80% - 120% recovery.

**5. Laboratory Control Sample Analysis: Acceptable.**

A Laboratory Control Sample (LCS) was analyzed per SDG per matrix. All LCS results were within the established control limits.

**6. Overall Assessment of Data for Use**

This memo was updated in January 2020 to include silver results which were inadvertently omitted.

A total of 115 results were validated in this data memorandum. No sample results were qualified as estimated quantities (J) based on spike accuracy outliers, holding time outliers, incorrect sample containers, or sample temperature outliers. No sample results were rejected (R).

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the analytical method(s), the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, and/or the Office of Emergency and Remedial Response Publication "National Functional Guidelines for Superfund Inorganic Methods Data Review, January 2017". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

- H - The sample result is biased high.
- J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
- K - The bias of the sample is not known.
- L - The sample result is biased low.
- Q - Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.
- R - The data is rejected and unusable. The analyte may or may not be present in the sample.
- U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.

1A-IN  
INORGANIC ANALYSIS DATA SHEET  
METALS

Client Sample ID: 19070148

Lab Sample ID: 580-87760-1

Lab Name: Eurofins TestAmerica, Spokane

Job No.: 580-87760-2

SDG ID.:

Matrix: Solid

Date Sampled: 07/17/2019 15:16

Reporting Basis: DRY

Date Received: 07/18/2019 08:00

% Solids: 78.5

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7429-90-5	Aluminum	7000	56	37	mg/Kg			1	6010C
7440-36-0	Antimony	<del>ND</del>	2.8	1.0	mg/Kg			1	6010C
7440-38-2	Arsenic	5.2	1.4	0.56	mg/Kg			1	6010C
7440-39-3	Barium	54	1.4	0.38	mg/Kg			1	6010C
7440-41-7	Beryllium	0.34	1.4	0.23	mg/Kg	J Q		1	6010C
7440-43-9	Cadmium	0.44	1.1	0.067	mg/Kg	J Q		1	6010C
7440-70-2	Calcium	9400	110	34	mg/Kg			1	6010C
7440-47-3	Chromium	19	1.4	0.20	mg/Kg			1	6010C
7440-48-4	Cobalt	4.3	1.4	0.11	mg/Kg			1	6010C
7440-50-8	Copper	31	4.5	1.7	mg/Kg			1	6010C
7439-89-6	Iron	10000	110	49	mg/Kg			1	6010C
7439-92-1	Lead	43	3.4	1.7	mg/Kg			1	6010C
7439-95-4	Magnesium	3600	56	20	mg/Kg			1	6010C
7439-96-5	Manganese	210	17	1.2	mg/Kg			1	6010C
7440-02-0	Nickel	18	1.4	0.17	mg/Kg			1	6010C
7440-09-7	Potassium	560	28	14	mg/Kg			1	6010C
7782-49-2	Selenium	<del>ND</del>	5.6	3.4	mg/Kg			1	6010C
7440-22-4	Silver	0.23	1.4	0.15	mg/Kg	J Q		1	6010C
7440-23-5	Sodium	300	28	12	mg/Kg			1	6010C
7440-28-0	Thallium	<del>ND</del>	2.8	0.39	mg/Kg			1	6010C
7440-62-2	Vanadium	25	1.4	0.25	mg/Kg			1	6010C
7440-66-6	Zinc	140	5.6	0.90	mg/Kg			1	6010C
7439-97-6	Hg	56	62	4.5	ug/Kg	J Q		1	7471B

*Handwritten signature: Jmw 1-8-20*

1A-IN  
INORGANIC ANALYSIS DATA SHEET  
METALS

Client Sample ID: 19070149

Lab Sample ID: 580-87760-2

Lab Name: Eurofins TestAmerica, Spokane

Job No.: 580-87760-2

SDG ID.:

Matrix: Solid

Date Sampled: 07/17/2019 15:44

Reporting Basis: DRY

Date Received: 07/18/2019 08:00

% Solids: 78.2

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7429-90-5	Aluminum	7000	52	34	mg/Kg			1	6010C
7440-36-0	Antimony	<del>ND</del> <i>4.8</i>	2.6	<i>U</i> 0.94	mg/Kg		<i>1/100</i>	1	6010C
7440-38-2	Arsenic	4.8	1.3	0.52	mg/Kg			1	6010C
7440-39-3	Barium	46	1.3	0.35	mg/Kg			1	6010C
7440-41-7	Beryllium	0.31	1.3	0.21	mg/Kg	J	<i>Q</i>	1	6010C
7440-43-9	Cadmium	0.29	1.0	0.061	mg/Kg	J	<i>Q</i>	1	6010C
7440-70-2	Calcium	8500	100	31	mg/Kg			1	6010C
7440-47-3	Chromium	19	1.3	0.18	mg/Kg			1	6010C
7440-48-4	Cobalt	4.3	1.3	0.10	mg/Kg			1	6010C
7440-50-8	Copper	21	4.2	1.6	mg/Kg			1	6010C
7439-89-6	Iron	9700	100	45	mg/Kg			1	6010C
7439-92-1	Lead	21	3.1	1.5	mg/Kg			1	6010C
7439-95-4	Magnesium	2800	52	19	mg/Kg			1	6010C
7439-96-5	Manganese	200	16	1.1	mg/Kg			1	6010C
7440-02-0	Nickel	15	1.3	0.16	mg/Kg			1	6010C
7440-09-7	Potassium	440	26	13	mg/Kg			1	6010C
7782-49-2	Selenium	<del>ND</del> <i>5.2</i>	5.2	<i>U</i> 3.1	mg/Kg			1	6010C
7440-22-4	Silver	0.16	1.3	0.14	mg/Kg	J	<i>Q</i>	1	6010C
7440-23-5	Sodium	260	26	11	mg/Kg			1	6010C
7440-28-0	Thallium	<del>ND</del> <i>2.6</i>	2.6	<i>U</i> 0.36	mg/Kg			1	6010C
7440-62-2	Vanadium	25	1.3	0.23	mg/Kg			1	6010C
7440-66-6	Zinc	86	5.2	0.83	mg/Kg			1	6010C
7439-97-6	Hg	42	57	4.1	ug/Kg	J	<i>Q</i>	1	7471B

*Handwritten signature/initials*



1A-IN  
INORGANIC ANALYSIS DATA SHEET  
METALS

Client Sample ID: 19070150

Lab Sample ID: 580-87760-3

Lab Name: Eurofins TestAmerica, Spokane

Job No.: 580-87760-2

SDG ID.:

Matrix: Solid

Date Sampled: 07/17/2019 16:04

Reporting Basis: DRY

Date Received: 07/18/2019 08:00

% Solids: 79.4

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7429-90-5	Aluminum	13000	52	35	mg/Kg			1	6010C
7440-36-0	Antimony	<del>NE</del> 5.4	2.6	U 0.95	mg/Kg		1/100	1	6010C
7440-38-2	Arsenic	5.4	1.3	0.52	mg/Kg			1	6010C
7440-39-3	Barium	67	1.3	0.35	mg/Kg			1	6010C
7440-41-7	Beryllium	<del>0.45</del> 0.21	1.3	U 0.21	mg/Kg	<del>1/100</del>		1	6010C
7440-43-9	Cadmium	0.21	1.0	0.062	mg/Kg	JQ		1	6010C
7440-70-2	Calcium	7200	100	31	mg/Kg			1	6010C
7440-47-3	Chromium	41	1.3	0.19	mg/Kg			1	6010C
7440-48-4	Cobalt	8.3	1.3	0.10	mg/Kg			1	6010C
7440-50-8	Copper	41	4.2	1.6	mg/Kg			1	6010C
7439-89-6	Iron	17000	100	45	mg/Kg			1	6010C
7439-92-1	Lead	24	3.1	1.5	mg/Kg			1	6010C
7439-95-4	Magnesium	5500	52	19	mg/Kg			1	6010C
7439-96-5	Manganese	300	16	1.1	mg/Kg			1	6010C
7440-02-0	Nickel	34	1.3	0.16	mg/Kg			1	6010C
7440-09-7	Potassium	730	26	13	mg/Kg			1	6010C
7782-49-2	Selenium	<del>NE</del> 5.2	5.2	U 3.2	mg/Kg			1	6010C
7440-22-4	Silver	0.25	1.3	U 0.14	mg/Kg	JQ		1	6010C
7440-23-5	Sodium	390	26	11	mg/Kg			1	6010C
7440-28-0	Thallium	<del>NE</del> 2.6	2.6	U 0.36	mg/Kg			1	6010C
7440-62-2	Vanadium	44	1.3	0.23	mg/Kg			1	6010C
7440-66-6	Zinc	100	5.2	0.83	mg/Kg			1	6010C
7439-97-6	Hg	74	59	4.2	ug/Kg			1	7471B

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1A-IN  
INORGANIC ANALYSIS DATA SHEET  
METALS

Client Sample ID: 19070151

Lab Sample ID: 580-87760-4

Lab Name: Eurofins TestAmerica, Spokane

Job No.: 580-87760-2

SDG ID.:

Matrix: Solid

Date Sampled: 07/17/2019 16:10

Reporting Basis: DRY

Date Received: 07/18/2019 08:00

% Solids: 77.4

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7429-90-5	Aluminum	8500	53	35	mg/Kg		2	1	6010C
7440-36-0	Antimony	ND	2.7	0.97	mg/Kg		2	1	6010C
7440-38-2	Arsenic	5.1	1.3	0.53	mg/Kg			1	6010C
7440-39-3	Barium	53	1.3	0.36	mg/Kg			1	6010C
7440-41-7	Beryllium	0.46	1.3	0.22	mg/Kg	JW		1	6010C
7440-43-9	Cadmium	0.40	1.1	0.063	mg/Kg	JQ		1	6010C
7440-70-2	Calcium	14000	110	32	mg/Kg			1	6010C
7440-47-3	Chromium	22	1.3	0.19	mg/Kg			1	6010C
7440-48-4	Cobalt	6.5	1.3	0.10	mg/Kg			1	6010C
7440-50-8	Copper	42	4.3	1.6	mg/Kg			1	6010C
7439-89-6	Iron	15000	110	46	mg/Kg			1	6010C
7439-92-1	Lead	24	3.2	1.6	mg/Kg			1	6010C
7439-95-4	Magnesium	4300	53	19	mg/Kg			1	6010C
7439-96-5	Manganese	250	16	1.1	mg/Kg			1	6010C
7440-02-0	Nickel	24	1.3	0.16	mg/Kg			1	6010C
7440-09-7	Potassium	440	27	13	mg/Kg			1	6010C
7782-49-2	Selenium	ND	5.3	3.2	mg/Kg			1	6010C
7440-22-4	Silver	0.23	1.3	0.14	mg/Kg	JQ		1	6010C
7440-23-5	Sodium	370	27	11	mg/Kg			1	6010C
7440-28-0	Thallium	ND	2.7	0.37	mg/Kg			1	6010C
7440-62-2	Vanadium	32	1.3	0.24	mg/Kg			1	6010C
7440-66-6	Zinc	120	5.3	0.85	mg/Kg			1	6010C
7439-97-6	Hg	42	62	4.4	ug/Kg	JQ		1	7471B

*Handwritten signature/initials*



1A-IN  
INORGANIC ANALYSIS DATA SHEET  
METALS

Client Sample ID: 19070152

Lab Sample ID: 580-87760-5

Lab Name: Eurofins TestAmerica, Spokane

Job No.: 580-87760-2

SDG ID.:

Matrix: Solid

Date Sampled: 07/17/2019 16:13

Reporting Basis: DRY

Date Received: 07/18/2019 08:00

% Solids: 81.1

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7429-90-5	Aluminum	12000	48	32	mg/Kg			1	6010C
7440-36-0	Antimony	ND	2.4	0.87	mg/Kg			1	6010C
7440-38-2	Arsenic	6.2	1.2	0.48	mg/Kg			1	6010C
7440-39-3	Barium	76	1.2	0.32	mg/Kg			1	6010C
7440-41-7	Beryllium	0.43	1.2	0.19	mg/Kg			1	6010C
7440-43-9	Cadmium	0.23	0.96	0.057	mg/Kg	J		1	6010C
7440-70-2	Calcium	7400	96	29	mg/Kg			1	6010C
7440-47-3	Chromium	40	1.2	0.17	mg/Kg			1	6010C
7440-48-4	Cobalt	9.7	1.2	0.093	mg/Kg			1	6010C
7440-50-8	Copper	65	3.9	1.5	mg/Kg			1	6010C
7439-89-6	Iron	21000	96	42	mg/Kg			1	6010C
7439-92-1	Lead	27	2.9	1.4	mg/Kg			1	6010C
7439-95-4	Magnesium	5300	48	17	mg/Kg			1	6010C
7439-96-5	Manganese	290	14	1.0	mg/Kg			1	6010C
7440-02-0	Nickel	30	1.2	0.15	mg/Kg			1	6010C
7440-09-7	Potassium	760	24	12	mg/Kg			1	6010C
7782-49-2	Selenium	ND	4.8	2.9	mg/Kg			1	6010C
7440-22-4	Silver	0.35	1.2	0.13	mg/Kg	J		1	6010C
7440-23-5	Sodium	430	24	10	mg/Kg			1	6010C
7440-28-0	Thallium	ND	2.4	0.33	mg/Kg			1	6010C
7440-62-2	Vanadium	42	1.2	0.21	mg/Kg			1	6010C
7440-66-6	Zinc	140	4.8	0.76	mg/Kg			1	6010C
7439-97-6	Hg	44	58	4.2	ug/Kg	J		1	7471B



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### MEMORANDUM

DATE: August 12, 2019

TO: Seth Wing, START-IV Project Manager, E & E, Seattle, Washington

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington *MW*

SUBJ: **Organic Data Quality Assurance Review, May Creek Removal Action Site, Renton, Washington**

REF: TO: TO-68HE0718F0470 PAN: 1004530.0470.991.01

The data quality assurance review of 6 soil samples collected from the May Creek Removal Action site located in Renton, Washington, has been completed. Analysis for Extended Gasoline Range Total Petroleum Hydrocarbons (Ecology Method NWTPH-Gx) analyses was performed by Test America, Inc., Spokane, Washington. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Manual Process (S2B/4VM).

The samples were numbered:

19070148      19070149      19070150      19070151      19070152      19070610

#### Data Qualifications:

##### 1. **Sample Holding Times: Acceptable.**

The samples were maintained and received within the QC limits of  $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ . The samples were collected on July 17, 2019, were received at the laboratory within 48 hours of collection, and were analyzed by July 19, 2019, therefore meeting QC criteria of less than 14 days between collection and analysis for soil samples.

##### 2. **Initial Calibration: Acceptable.**

Calculations were verified as correct. All relative percent differences (RPDs) were less than or equal to the laboratory control limits.

##### 3. **Continuing Calibration: Acceptable.**

Calculations were verified as correct. All percent differences were less than or equal to the laboratory control limits.

##### 4. **Blanks: Acceptable.**

A method blank was analyzed at the required frequency of every 12 hours for each matrix, preparation technique, and analysis system. Gasoline-range TPHs were not detected in the method blank

or in the trip blank.

**5. System Monitoring Compounds (SMC): Acceptable.**

All recoveries of the SMCs were greater than 10% and within QC limits.

**6. Blank Spikes (BS) and BS Duplicate (BSD) Analyses: Acceptable.**

BS and BSD results were within laboratory QC limits.

**7. Duplicates: Acceptable.**

All duplicate and spike duplicate results were within laboratory QC limits.

**8. Quantitation and Quantitation Limits: Acceptable.**

Sample quantitation and sample quantitation limits were correctly calculated.

**9. Laboratory Contact: Not Required.**

No laboratory contact was required.

**10. Overall Assessment of Data for Use**

A total of 6 results were validated in this data memorandum. No sample results were qualified as estimated quantities (J) based on duplicate precision outliers, spike accuracy outliers, holding time outliers, incorrect sample containers, or sample temperature outliers. No sample results were rejected (R). No analytes were detected in the trip blank.

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the analytical method(s), the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, and/or the Office of Emergency and Remedial Response Publication "National Functional Guidelines for Superfund Organic Methods Data Review, January 2017". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

H - The sample result is biased high.

J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

K - The bias of the sample is not known.

L - The sample result is biased low.

- Q - Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.
- R - The data is rejected and unusable. The analyte may or may not be present in the sample.
- U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Spokane Job No.: 580-87760-2  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070148 Lab Sample ID: 580-87760-1  
 Matrix: Solid Lab File ID: 07191917.D  
 Analysis Method: NWTPH-Gx Date Collected: 07/17/2019 15:16  
 Sample wt/vol: 8.597(g) Date Analyzed: 07/19/2019 17:07  
 Soil Aliquot Vol: 0.86 (mL) Dilution Factor: 1  
 Soil Extract Vol.: 10 (mL) GC Column: RTX-VMS 30m ID: 0.25 (mm)  
 % Moisture: 21.5 Level: (low/med) Medium  
 Analysis Batch No.: 23120 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00228	Gasoline	3.3	J <u>Q</u>	8.8	3.2

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	98		41.5-162

*Mw 8/2/19*

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Spokane

Job No.: 580-87760-2

SDG No.:

Client Sample ID: 19070149

Lab Sample ID: 580-87760-2

Matrix: Solid

Lab File ID: 07191918.D

Analysis Method: NWTPH-Gx

Date Collected: 07/17/2019 15:44

Sample wt/vol: 9.988(g)

Date Analyzed: 07/19/2019 17:29

Soil Aliquot Vol: 0.86 (mL)

Dilution Factor: 1

Soil Extract Vol.: 10 (mL)

GC Column: RTX-VMS 30m ID: 0.25 (mm)

% Moisture: 21.8

Level: (low/med) Medium

Analysis Batch No.: 23120

Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00228	Gasoline	ND		7.8	2.8

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	103		41.5-162

mw8-12-19

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Spokane Job No.: 580-87760-2  
SDG No.: \_\_\_\_\_  
Client Sample ID: 19070150 Lab Sample ID: 580-87760-3  
Matrix: Solid Lab File ID: 07191919.D  
Analysis Method: NWTPH-Gx Date Collected: 07/17/2019 16:04  
Sample wt/vol: 12.369(g) Date Analyzed: 07/19/2019 17:50  
Soil Aliquot Vol: 0.86 (mL) Dilution Factor: 1  
Soil Extract Vol.: 10 (mL) GC Column: RTX-VMS 30m ID: 0.25 (mm)  
% Moisture: 20.6 Level: (low/med) Medium  
Analysis Batch No.: 23120 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00228	Gasoline	61		6.4	2.3

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	104		41.5-162

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Spokane Job No.: 580-87760-2  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070151 Lab Sample ID: 580-87760-4  
 Matrix: Solid Lab File ID: 07191920.D  
 Analysis Method: NWTPH-Gx Date Collected: 07/17/2019 16:10  
 Sample wt/vol: 10.953(g) Date Analyzed: 07/19/2019 18:11  
 Soil Aliquot Vol: 0.86 (mL) Dilution Factor: 1  
 Soil Extract Vol.: 10 (mL) GC Column: RTX-VMS 30m ID: 0.25 (mm)  
 % Moisture: 22.6 Level: (low/med) Medium  
 Analysis Batch No.: 23120 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00228	Gasoline	<del>MDL</del>		7.4	2.7

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	98		41.5-162



FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Spokane Job No.: 580-87760-2  
SDG No.: \_\_\_\_\_  
Client Sample ID: 19070152 Lab Sample ID: 580-87760-5  
Matrix: Solid Lab File ID: 07191922.D  
Analysis Method: NWTPH-Gx Date Collected: 07/17/2019 16:13  
Sample wt/vol: 10.252(g) Date Analyzed: 07/19/2019 18:54  
Soil Aliquot Vol: 0.86 (mL) Dilution Factor: 1  
Soil Extract Vol.: 10 (mL) GC Column: RTX-VMS 30m ID: 0.25 (mm)  
% Moisture: 18.9 Level: (low/med) Medium  
Analysis Batch No.: 23120 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00228	Gasoline	67		7.2	2.6

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	102		41.5-162

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Spokane Job No.: 580-87760-2  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070610 Lab Sample ID: 580-87760-9  
 Matrix: Solid Lab File ID: 07191924.D  
 Analysis Method: NWTPH-Gx Date Collected: 07/17/2019 18:20  
 Sample wt/vol: 10(g) Date Analyzed: 07/19/2019 19:36  
 Soil Aliquot Vol: 0.86 (mL) Dilution Factor: 1  
 Soil Extract Vol.: 10(mL) GC Column: RTX-VMS 30m ID: 0.25 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Medium  
 Analysis Batch No.: 23120 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00228	Gasoline	<i>ML</i>		5.0 <i>V</i>	1.8

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	100		41.5-162



**MEMORANDUM**

DATE: August 12, 2019

TO: Seth Wing, START-IV Project Manager, E & E, Seattle, WA

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington *WW*

SUBJ: **Organic Data Quality Assurance Review, May Creek Removal Action Site, Renton, Washington**

REF: TO: TO-68HE0718F0470      PAN: 1004530.0470.001.01

The data quality assurance review of 5 soil samples collected from the May Creek Removal Action site located in Renton, Washington, has been completed. Analyses for Polychlorinated Biphenyls (PCBs - EPA Method 8082) were performed by Test America, Inc., Spokane, Washington. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Manual Process (S2B/4VM).

The samples were numbered:

19070148      19070149      19070150      19070151      19070152

**Data Qualifications:**

**1. Sample Holding Times: Acceptable.**

The samples were maintained at 0°C to 6°C. The samples were collected on July 17, 2019, extracted on July 22, 2019, and were analyzed by July 22, 2019. There are no holding time limits for Method 8082 PCBs.

**2. Instrument Performance: Acceptable.**

The surrogate retention time percent difference between the initial calibration standards and the remaining standards and samples was within QC limits.

**3. Initial and Continuing Calibration: Satisfactory.**

All initial calibration relative standard deviations (RSDs) were within QC limits. All continuing calibration % differences (% D) were within QC limits except high results on one column; no actions were taken based on this outlier as the high results were not associated with any positive sample results.

**4. Blanks: Acceptable.**

A method blank was prepared at the required frequency of every time samples were extracted for each matrix and for each concentration level, or every 20 samples, whichever is greater, and for each analytical system. No target analytes were detected in the laboratory blanks.

**5. System Monitoring Compounds (SMCs): Acceptable.**

All recoveries of the SMCs were within QC limits.

**6. Blank Spike (BS), Matrix Spike (MS), and MS Duplicate (MSD) Analyses: Satisfactory.**

BS recoveries were within QC limits. MS and MSD results were not applicable as the native sample results were more than four times the amount spiked into the MS and MSD.

**7. Duplicates: Not Applicable.**

Spike duplicate results were not applicable as noted above.

**8. Compound Identification: Acceptable.**

All positive sample results were dual-column confirmed with differences between the columns less than 40%.

**9. Target Compound Quantitation and Quantitation Limits: Acceptable.**

Sample results and quantitation limits were correctly calculated.

**10. Laboratory Contact**

No laboratory contact was required.

**11. Overall Assessment**

A total of 45 results were validated in this data memorandum. No sample results were qualified as estimated quantities (J) based on duplicate precision outliers, holding time outliers, incorrect sample containers, or sample temperature outliers. No sample results were rejected (R).

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result. This updated memorandum provides additional results that weren't provided in the original submittal.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the analytical method(s), the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, and/or the Office of Emergency and Remedial Response Publication "National Functional Guidelines for Superfund Organic Methods Data Review, January 2017". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

H - The sample result is biased high.

J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

K - The bias of the sample is not known.

L - The sample result is biased low.

- Q - Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.
- R - The data is rejected and unusable. The analyte may or may not be present in the sample.
- U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.

FORM I  
PCBS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Spokane Job No.: 580-87760-2  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070148 Lab Sample ID: 580-87760-1  
 Matrix: Solid Lab File ID: 190722009.D  
 Analysis Method: 8082A Date Collected: 07/17/2019 15:16  
 Extraction Method: 3550C Date Extracted: 07/22/2019 08:11  
 Sample wt/vol: 7.59(g) Date Analyzed: 07/22/2019 12:25  
 Con. Extract Vol.: 5(mL) Dilution Factor: 1  
 Injection Volume: 5(mL) GC Column: STX-CLP Pst2 ID: 0.2 (mm)  
 % Moisture: 21.5 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 23138 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
12674-11-2	PCB-1016	ND		25	5.5
11104-28-2	PCB-1221	ND		25	5.5
11141-16-5	PCB-1232	ND		25	5.5
53469-21-9	PCB-1242	ND		25	5.5
12672-29-6	PCB-1248	ND		25	5.5
11097-69-1	PCB-1254	ND		25	5.5
11096-82-5	PCB-1260	ND		25	5.5
11100-14-4	PCB-1268	ND		25	5.5
37324-23-5	PCB-1262	ND		25	5.5

CAS NO.	SURROGATE	%REC	Q	LIMITS
877-09-8	Tetrachloro-m-xylene	86		31-142
2051-24-3	DCB Decachlorobiphenyl (Surr)	109		20-150

FORM I  
PCBS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Spokane Job No.: 580-87760-2  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070149 Lab Sample ID: 580-87760-2  
 Matrix: Solid Lab File ID: 190722010.D  
 Analysis Method: 8082A Date Collected: 07/17/2019 15:44  
 Extraction Method: 3550C Date Extracted: 07/22/2019 08:11  
 Sample wt/vol: 7.45(g) Date Analyzed: 07/22/2019 12:46  
 Con. Extract Vol.: 5(mL) Dilution Factor: 1  
 Injection Volume: 5(mL) GC Column: STX-CLP Pst2 ID: 0.2(mm)  
 % Moisture: 21.8 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 23138 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
12674-11-2	PCB-1016	ND		26	5.7
11104-28-2	PCB-1221	ND		26	5.7
11141-16-5	PCB-1232	ND		26	5.7
53469-21-9	PCB-1242	ND		26	5.7
12672-29-6	PCB-1248	ND		26	5.7
11097-69-1	PCB-1254	ND		26	5.7
11096-82-5	PCB-1260	ND		26	5.7
11100-14-4	PCB-1268	ND		26	5.7
37324-23-5	PCB-1262	ND		26	5.7

CAS NO.	SURROGATE	%REC	Q	LIMITS
877-09-8	Tetrachloro-m-xylene	85		31-142
2051-24-3	DCB Decachlorobiphenyl (Surr)	86		20-150

FORM I  
PCBS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Spokane Job No.: 580-87760-2  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070150 Lab Sample ID: 580-87760-3  
 Matrix: Solid Lab File ID: 190722011.D  
 Analysis Method: 8082A Date Collected: 07/17/2019 16:04  
 Extraction Method: 3550C Date Extracted: 07/22/2019 08:11  
 Sample wt/vol: 7.50 (g) Date Analyzed: 07/22/2019 13:06  
 Con. Extract Vol.: 5 (mL) Dilution Factor: 1  
 Injection Volume: 5 (mL) GC Column: STX-CLP Pst2 ID: 0.2 (mm)  
 % Moisture: 20.6 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 23138 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
12674-11-2	PCB-1016	ND	FL P2	25	5.5
11104-28-2	PCB-1221	ND		25	5.5
11141-16-5	PCB-1232	ND		25	5.5
53469-21-9	PCB-1242	990		25	5.5
12672-29-6	PCB-1248	ND		25	5.5
11097-69-1	PCB-1254	ND		25	5.5
11096-82-5	PCB-1260	ND		25	5.5
11100-14-4	PCB-1268	ND		25	5.5
37324-23-5	PCB-1262	ND		25	5.5

CAS NO.	SURROGATE	%REC	Q	LIMITS
877-09-8	Tetrachloro-m-xylene	81		31-142
2051-24-3	DCB Decachlorobiphenyl (Surr)	101		20-150

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FORM I  
PCBS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Spokane Job No.: 580-87760-2  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070151 Lab Sample ID: 580-87760-4  
 Matrix: Solid Lab File ID: 190722014.D  
 Analysis Method: 8082A Date Collected: 07/17/2019 16:10  
 Extraction Method: 3550C Date Extracted: 07/22/2019 08:11  
 Sample wt/vol: 7.69(g) Date Analyzed: 07/22/2019 14:08  
 Con. Extract Vol.: 5(mL) Dilution Factor: 1  
 Injection Volume: 5(mL) GC Column: STX-CLP Pst2 ID: 0.2(mm)  
 % Moisture: 22.6 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 23138 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
12674-11-2	PCB-1016	ND		25	5.5
11104-28-2	PCB-1221	ND		25	5.5
11141-16-5	PCB-1232	ND		25	5.5
53469-21-9	PCB-1242	ND		25	5.5
12672-29-6	PCB-1248	ND		25	5.5
11097-69-1	PCB-1254	ND		25	5.5
11096-82-5	PCB-1260	12	J Q	25	5.5
11100-14-4	PCB-1268	ND		25	5.5
37324-23-5	PCB-1262	ND		25	5.5

CAS NO.	SURROGATE	%REC	Q	LIMITS
877-09-8	Tetrachloro-m-xylene	85		31-142
2051-24-3	DCB Decachlorobiphenyl (Surr)	129		20-150

*MW 8-12-19*

FORM I  
PCBS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Spokane Job No.: 580-87760-2  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070152 Lab Sample ID: 580-87760-5  
 Matrix: Solid Lab File ID: 190722015.D  
 Analysis Method: 8082A Date Collected: 07/17/2019 16:13  
 Extraction Method: 3550C Date Extracted: 07/22/2019 08:11  
 Sample wt/vol: 7.82(g) Date Analyzed: 07/22/2019 14:28  
 Con. Extract Vol.: 5(mL) Dilution Factor: 1  
 Injection Volume: 5(mL) GC Column: STX-CLP Pst2 ID: 0.2(mm)  
 % Moisture: 18.9 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 23138 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
12674-11-2	PCB-1016	ND		24	5.2
11104-28-2	PCB-1221	ND		24	5.2
11141-16-5	PCB-1232	ND		24	5.2
12672-29-6	PCB-1248	ND		24	5.2
11097-69-1	PCB-1254	ND		24	5.2
11096-82-5	PCB-1260	ND		24	5.2
11100-14-4	PCB-1268	ND		24	5.2
37324-23-5	PCB-1262	ND		24	5.2

CAS NO.	SURROGATE	%REC	Q	LIMITS
877-09-8	Tetrachloro-m-xylene	79		31-142
2051-24-3	DCB Decachlorobiphenyl (Surr)	85		20-150

*MW 8/2-19*

FORM I  
PCBS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Spokane Job No.: 580-87760-2  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070152 Lab Sample ID: 580-87760-5  
 Matrix: Solid Lab File ID: 190722018.D  
 Analysis Method: 8082A Date Collected: 07/17/2019 16:13  
 Extraction Method: 3550C Date Extracted: 07/22/2019 08:11  
 Sample wt/vol: 7.82(g) Date Analyzed: 07/22/2019 15:30  
 Con. Extract Vol.: 5(mL) Dilution Factor: 10  
 Injection Volume: 5(mL) GC Column: STX-CLP Pst2 ID: 0.2(mm)  
 % Moisture: 18.9 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 23138 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
53469-21-9	PCB-1242	1700		240	52

CAS NO.	SURROGATE	%REC	Q	LIMITS
877-09-8	Tetrachloro-m-xylene	69		31-142
2051-24-3	DCB Decachlorobiphenyl (Surr)	93		20-150

*John Smith*



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### MEMORANDUM

DATE: August 12, 2019

TO: Seth Wing, START-IV Project Manager, E & E, Seattle, WA

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington *mw*

SUBJ: **Organic Data Quality Assurance Review, May Creek Removal Action Site, Renton, Washington**

REF: TO: TO-68HE0718F0470      PAN: 1004530.0470.001.01

The data quality assurance review of eight soil samples collected from the May Creek Removal Action site located in Renton, Washington, has been completed. Analysis for Extended Diesel Range Total Petroleum Hydrocarbons (Ecology Method NWTPH-Dx) was performed by Test America, Inc., Spokane, Washington. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Manual Process (S2B/4VM).

The samples were numbered:

19070148	19070149	19070150	19070151	19070152	19070153
19070154	19070155				

#### Data Qualifications:

**1. Sample Holding Times: Acceptable.**

The samples were maintained at  $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ . The samples were collected on July 10, 2019, extracted on July 19, 2019, and analyzed by July 19, 2019, therefore meeting QC criteria of less than 14 days between collection and extraction for soil samples and less than 40 days between extraction and analysis.

**2. Initial Calibration: Acceptable.**

Calculations were verified as correct. All relative percent differences (RPDs) were within the laboratory control limits.

**3. Continuing Calibration: Acceptable.**

Calculations were verified as correct. All percent differences (%Ds) were within the laboratory control limits.

**4. Blanks: Acceptable.**

A method blank was analyzed for each extraction batch for each matrix and analysis system.

Diesel- and motor oil-range TPHs were not detected in the method blank.

**5. System Monitoring Compounds (SMC): Satisfactory.**

All recoveries of the SMCs were greater than 10% and within QC limits except when interference occurred due to native sample PCB results; no actions were taken based on these outliers.

**6. Blank Spike (BS): Acceptable.**

BS recoveries were within QC limits.

**7. Duplicates: Acceptable.**

All duplicate results were within QC limits.

**8. Quantitation and Quantitation Limits: Acceptable.**

Sample concentrations were correctly calculated.

**8. Laboratory Contact: Not Required.**

No laboratory contact was required.

**9. Overall Assessment of Data for Use**

Partially from the laboratory case narrative: There is some motor oil overlap into the diesel range in samples 19070148, 19070151, 19070153, 189070154, and 19070155; diesel results for these samples were qualified as estimated quantities with a high bias (JH). Detected hydrocarbons in sample 19070150 appear to be a complex mixture of diesel and motor oil; the results in this sample were qualified as estimated quantities with an unknown bias (JK).

A total of 16 results were validated in this data memorandum. No sample results were qualified as estimated quantities (J) based on duplicate precision outliers, spike accuracy outliers, holding time outliers, incorrect sample containers, or sample temperature outliers. No sample results were rejected (R).

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the analytical method(s), the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, and/or the Office of Emergency and Remedial Response Publication "National Functional Guidelines for Superfund Organic Methods Data Review, January 2017". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

H - The sample result is biased high.

J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

- K - The bias of the sample is not known.
- L - The sample result is biased low.
- Q - Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.
- R - The data is rejected and unusable. The analyte may or may not be present in the sample.
- U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.

FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Spokane Job No.: 580-87760-2  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070148 Lab Sample ID: 580-87760-1  
 Matrix: Solid Lab File ID: 590-0005748-019.D  
 Analysis Method: NWTPH-Dx Date Collected: 07/17/2019 15:16  
 Extraction Method: 3550C Date Extracted: 07/19/2019 11:48  
 Sample wt/vol: 15.77(g) Date Analyzed: 07/19/2019 20:12  
 Con. Extract Vol.: 5(mL) Dilution Factor: 10  
 Injection Volume: 2(uL) GC Column: ZB-1HT B ID: 0.25 (mm)  
 % Moisture: 21.5 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 23131 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00258	Diesel Range Organics (DRO) (C10-C25)	340	JH	120	51
STL00383	Residual Range Organics (RRO) (C25-C36)	1800		300	61

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	85		50-150
93952-07-9	n-Triacontane-d62	122		50-150

*Mu 8/17/19*

FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>Eurofins TestAmerica, Spokane</u>	Job No.: <u>580-87760-2</u>
SDG No.: _____	
Client Sample ID: <u>19070149</u>	Lab Sample ID: <u>580-87760-2</u>
Matrix: <u>Solid</u>	Lab File ID: <u>590-0005748-021.D</u>
Analysis Method: <u>NWTPH-Dx</u>	Date Collected: <u>07/17/2019 15:44</u>
Extraction Method: <u>3550C</u>	Date Extracted: <u>07/19/2019 11:48</u>
Sample wt/vol: <u>15.09(g)</u>	Date Analyzed: <u>07/19/2019 20:52</u>
Con. Extract Vol.: <u>5(mL)</u>	Dilution Factor: <u>10</u>
Injection Volume: <u>2(uL)</u>	GC Column: <u>ZB-1HT B</u> ID: <u>0.25 (mm)</u>
% Moisture: <u>21.8</u>	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>23131</u>	Units: <u>mg/Kg</u>

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00258	Diesel Range Organics (DRO) (C10-C25)	500		130	53
STL00383	Residual Range Organics (RRO) (C25-C36)	2100		320	64

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	92		50-150
93952-07-9	n-Triacontane-d62	157		50-150

*h  
ml*

*mw 8-12-19*



FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Spokane Job No.: 580-87760-2  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070150 Lab Sample ID: 580-87760-3  
 Matrix: Solid Lab File ID: 590-0005748-022.D  
 Analysis Method: NWTPH-Dx Date Collected: 07/17/2019 16:04  
 Extraction Method: 3550C Date Extracted: 07/19/2019 11:48  
 Sample wt/vol: 15.34(g) Date Analyzed: 07/19/2019 21:12  
 Con. Extract Vol.: 5(mL) Dilution Factor: 10  
 Injection Volume: 2(uL) GC Column: ZB-1HT B ID: 0.25(mm)  
 % Moisture: 20.6 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 23131 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00258	Diesel Range Organics (DRO) (C10-C25)	920	JK	120	52
STL00383	Residual Range Organics (RRO) (C25-C36)	2300	JK	310	62

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	93		50-150
93952-07-9	n-Triacontane-d62	132		50-150

*JK 8-12-19*

FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Spokane Job No.: 580-87760-2  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070151 Lab Sample ID: 580-87760-4  
 Matrix: Solid Lab File ID: 590-0005748-023.D  
 Analysis Method: NWTPH-Dx Date Collected: 07/17/2019 16:10  
 Extraction Method: 3550C Date Extracted: 07/19/2019 11:48  
 Sample wt/vol: 15.78(g) Date Analyzed: 07/19/2019 21:31  
 Con. Extract Vol.: 5(mL) Dilution Factor: 20  
 Injection Volume: 2(uL) GC Column: ZB-1HT B ID: 0.25 (mm)  
 % Moisture: 22.6 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 23131 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00258	Diesel Range Organics (DRO) (C10-C25)	400	JH	250	100
STL00383	Residual Range Organics (RRO) (C25-C36)	3300		610	120

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	98		50-150
93952-07-9	n-Triacontane-d62	97		50-150

*JH 8/2/19*

FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Spokane Job No.: 580-87760-2  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070152 Lab Sample ID: 580-87760-5  
 Matrix: Solid Lab File ID: 590-0005748-025.D  
 Analysis Method: NWTPH-Dx Date Collected: 07/17/2019 16:13  
 Extraction Method: 3550C Date Extracted: 07/19/2019 11:48  
 Sample wt/vol: 15.19(g) Date Analyzed: 07/19/2019 22:11  
 Con. Extract Vol.: 5(mL) Dilution Factor: 10  
 Injection Volume: 2(uL) GC Column: ZB-1HT B ID: 0.25 (mm)  
 % Moisture: 18.9 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 23131 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00258	Diesel Range Organics (DRO) (C10-C25)	1200		120	51
STL00383	Residual Range Organics (RRO) (C25-C36)	2100		300	61

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	108		50-150
93952-07-9	n-Triacontane-d62	152		50-150

FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Spokane Job No.: 580-87760-2  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070153 Lab Sample ID: 580-87760-6  
 Matrix: Solid Lab File ID: 590-0005748-026.D  
 Analysis Method: NWTPH-Dx Date Collected: 07/17/2019 16:55  
 Extraction Method: 3550C Date Extracted: 07/19/2019 11:48  
 Sample wt/vol: 15.00(g) Date Analyzed: 07/19/2019 22:31  
 Con. Extract Vol.: 5(mL) Dilution Factor: 20  
 Injection Volume: 2(uL) GC Column: ZB-1HT B ID: 0.25(mm)  
 % Moisture: 23.7 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 23131 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00258	Diesel Range Organics (DRO) (C10-C25)	840	JH	260	110
STL00383	Residual Range Organics (RRO) (C25-C36)	5600		660	130

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	95		50-150
93952-07-9	n-Triacontane-d62	90		50-150

*MW 8/2/19*

FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Spokane Job No.: 580-87760-2  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070154 Lab Sample ID: 580-87760-7  
 Matrix: Solid Lab File ID: 590-0005748-027.D  
 Analysis Method: NWTPH-Dx Date Collected: 07/17/2019 17:00  
 Extraction Method: 3550C Date Extracted: 07/19/2019 11:48  
 Sample wt/vol: 15.84(g) Date Analyzed: 07/19/2019 22:51  
 Con. Extract Vol.: 5(mL) Dilution Factor: 20  
 Injection Volume: 2(uL) GC Column: ZB-1HT B ID: 0.25 (mm)  
 % Moisture: 40.0 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 23131 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00258	Diesel Range Organics (DRO) (C10-C25)	310	<i>JQ</i>	320	130
STL00383	Residual Range Organics (RRO) (C25-C36)	3300		790	160

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	93		50-150
93952-07-9	n-Triacontane-d62	183	<i>k</i>	50-150

*MW 81219*

FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Spokane Job No.: 580-87760-2  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070155 Lab Sample ID: 580-87760-8  
 Matrix: Solid Lab File ID: 590-0005748-028.D  
 Analysis Method: NWTPH-Dx Date Collected: 07/17/2019 17:03  
 Extraction Method: 3550C Date Extracted: 07/19/2019 11:48  
 Sample wt/vol: 15.14(g) Date Analyzed: 07/19/2019 23:10  
 Con. Extract Vol.: 5(mL) Dilution Factor: 1  
 Injection Volume: 2(uL) GC Column: ZB-1HT B ID: 0.25(mm)  
 % Moisture: 37.0 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 23131 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00258	Diesel Range Organics (DRO) (C10-C25)	31	JH	16	6.6
STL00383	Residual Range Organics (RRO) (C25-C36)	160		39	7.9

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	84		50-150
93952-07-9	n-Triacontane-d62	96		50-150



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### MEMORANDUM

DATE: August 29, 2019

TO: Seti Wing, START-IV Project Manager, E & E, Seattle, WA

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington *MW*

SUBJ: **Organic Data Quality Assurance Review, May Creek Removal Action Site, Renton, Washington**

REF: TO: TO-68HE0718F0470      PAN: 1004530.0470.001.01

The data quality assurance review of 8 water samples collected from the May Creek Removal Action site located in Renton, Washington, has been completed. Analysis for Extended Diesel Range Total Petroleum Hydrocarbons (Ecology Method NWTPH-Dx) was performed by Test America, Inc., Tacoma, Washington. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Manual Process (S2B/4VM).

The samples were numbered:	19070401	19070402	19070403	19070404
	19070405	19070406	19070407	19070408

#### Data Qualifications:

##### **1. Sample Holding Times: Acceptable.**

The samples were maintained at  $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ . The samples were collected on July 23 and 24, 2019, extracted by August 6, 2019, and analyzed by August 8, 2019, therefore meeting QC criteria of less than 14 days between collection and extraction for preserved water samples and less than 40 days between extraction and analysis.

##### **2. Initial Calibration: Acceptable.**

Calculations were verified as correct. All relative percent differences (RPDs) were within the laboratory control limits.

##### **3. Continuing Calibration: Acceptable.**

Calculations were verified as correct. All percent differences (%Ds) were within the laboratory control limits.

##### **4. Blanks: Acceptable.**

A method blank was analyzed for each extraction batch for each matrix and analysis system. Diesel-range and motor-oil range TPHs were not detected in the method blank.

**5. System Monitoring Compounds (SMC): Acceptable.**

All recoveries of the SMCs were within QC limits.

**6. Blank Spike (BS) and Matrix Spike (MS): Acceptable.**

BS and MS recoveries were within QC limits.

**7. Duplicates: Acceptable.**

All duplicate and spike duplicate results were within QC limits.

**8. Quantitation and Quantitation Limits: Acceptable.**

Sample concentrations were correctly calculated.

**9. Laboratory Contact: Not Required.**

No laboratory contact was required.

**10. Overall Assessment of Data for Use**

Partially from the laboratory case narrative: The DRO concentration reported for the sample 19070407 is due to the presence of discrete peaks; the associated positive result was qualified as an estimated quantity with a high bias (JH). The following samples contained a hydrocarbon pattern in the diesel range; however, the elution pattern was later than the typical diesel fuel pattern used by the laboratory for quantitative purposes: 19070401, 19070402, 19070403, 19070404, 19070405, 19070406, and 19070408; associated positive results were qualified as estimated quantities with a high bias (JH). In (RTC 580-306812/2), n-nonane is mis-identified as n-octane. This marker is not within any ranges of interest for 580-306812; therefore, no actions were taken.

A total of 16 results were validated in this data memorandum. No sample results were qualified as estimated quantities (J) based on duplicate precision outliers, spike accuracy outliers, holding time outliers, incorrect sample containers, or sample temperature outliers. No sample results were rejected (R).

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the analytical method(s), the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, and/or the Office of Emergency and Remedial Response Publication "National Functional Guidelines for Superfund Organic Methods Data Review, January 2017". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

H - The sample result is biased high.

J - The result is an estimated quantity. The associated numerical value is the approximate



concentration of the analyte in the sample.

- K - The bias of the sample is not known.
- L - The sample result is biased low.
- Q - Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.
- R - The data is rejected and unusable. The analyte may or may not be present in the sample.
- U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.

FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87927-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070401 Lab Sample ID: 580-87927-1  
 Matrix: Water Lab File ID: 011F1501.D  
 Analysis Method: NWTPH-Dx Date Collected: 07/23/2019 10:27  
 Extraction Method: 3510C Date Extracted: 07/26/2019 12:49  
 Sample wt/vol: 1050.5 (mL) Date Analyzed: 07/27/2019 18:45  
 Con. Extract Vol.: 1.0 (mL) Dilution Factor: 1  
 Injection Volume: 1 (uL) GC Column: ZB-1HT ID: 0.25 (mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 306812 Units: mg/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00163	#2 Diesel (C10-C24)	<del>NTM</del>		0.10	0.062
STL00299	Motor Oil (>C24-C36)	0.13	JQ	0.33	0.091

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	80		50-150

*Jan 8-29-19*

FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87927-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070402 Lab Sample ID: 580-87927-2  
 Matrix: Water Lab File ID: 014F1801.D  
 Analysis Method: NWTPH-Dx Date Collected: 07/23/2019 10:57  
 Extraction Method: 3510C Date Extracted: 07/26/2019 12:49  
 Sample wt/vol: 962.9(mL) Date Analyzed: 07/27/2019 19:51  
 Con. Extract Vol.: 1.0(mL) Dilution Factor: 1  
 Injection Volume: 1(uL) GC Column: ZB-1HT ID: 0.25 (mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 306812 Units: mg/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00163	#2 Diesel (C10-C24)	0.16	2H	0.11	0.068
STL00299	Motor Oil (>C24-C36)	0.58		0.36	0.10

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	79		50-150

*mw 8-28-19*

FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87927-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070407 Lab Sample ID: 580-87927-3  
 Matrix: Water Lab File ID: 041F4101.D  
 Analysis Method: NWTPH-Dx Date Collected: 07/24/2019 10:10  
 Extraction Method: 3510C Date Extracted: 07/31/2019 14:53  
 Sample wt/vol: 245.7(mL) Date Analyzed: 08/02/2019 05:34  
 Con. Extract Vol.: 1.0(mL) Dilution Factor: 1  
 Injection Volume: 1(uL) GC Column: ZB-1HT ID: 0.25(mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 307280 Units: mg/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00163	#2 Diesel (C10-C24)	0.11	JH	0.11	0.066
STL00299	Motor Oil (>C24-C36)	0.14	JQ	0.36	0.098

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	84		50-150

JW 8-29-19

FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87927-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070404 Lab Sample ID: 580-87927-4  
 Matrix: Water Lab File ID: 015F1901.D  
 Analysis Method: NWTPH-Dx Date Collected: 07/23/2019 14:00  
 Extraction Method: 3510C Date Extracted: 07/26/2019 12:49  
 Sample wt/vol: 1051.3(mL) Date Analyzed: 07/27/2019 20:13  
 Con. Extract Vol.: 1.0(mL) Dilution Factor: 1  
 Injection Volume: 1(uL) GC Column: ZB-1HT ID: 0.25(mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 306812 Units: mg/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00163	#2 Diesel (C10-C24)	0.11	JH	0.10	0.062
STL00299	Motor Oil (>C24-C36)	0.31	JQ	0.33	0.091

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	68		50-150

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FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87927-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070405 Lab Sample ID: 580-87927-5  
 Matrix: Water Lab File ID: 016F2001.D  
 Analysis Method: NWTPH-Dx Date Collected: 07/23/2019 16:42  
 Extraction Method: 3510C Date Extracted: 07/26/2019 12:49  
 Sample wt/vol: 1050.5(mL) Date Analyzed: 07/27/2019 20:36  
 Con. Extract Vol.: 1.0(mL) Dilution Factor: 1  
 Injection Volume: 1(uL) GC Column: ZB-1HT ID: 0.25(mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 306812 Units: mg/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00163	#2 Diesel (C10-C24)	0.16	54	0.10	0.062
STL00299	Motor Oil (>C24-C36)	0.47		0.33	0.091

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	79		50-150

*MW 8/29/19*



FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87927-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070406 Lab Sample ID: 580-87927-6  
 Matrix: Water Lab File ID: 017F2101.D  
 Analysis Method: NWTPH-Dx Date Collected: 07/23/2019 18:41  
 Extraction Method: 3510C Date Extracted: 07/26/2019 12:49  
 Sample wt/vol: 1044.6(mL) Date Analyzed: 07/27/2019 20:58  
 Con. Extract Vol.: 1.0(mL) Dilution Factor: 1  
 Injection Volume: 1(uL) GC Column: ZB-1HT ID: 0.25(mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 306812 Units: mg/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00163	#2 Diesel (C10-C24)	0.25	JH	0.11	0.062
STL00299	Motor Oil (>C24-C36)	0.77		0.34	0.092

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	71		50-150

*MW 829-14*

FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87927-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070408 Lab Sample ID: 580-87927-7  
 Matrix: Water Lab File ID: 080819A\_007.D  
 Analysis Method: NWTPH-Dx Date Collected: 07/24/2019 12:10  
 Extraction Method: 3510C Date Extracted: 08/06/2019 13:29  
 Sample wt/vol: 925.9(mL) Date Analyzed: 08/08/2019 13:36  
 Con. Extract Vol.: 1.0(mL) Dilution Factor: 1  
 Injection Volume: 1(uL) GC Column: ZB-1HT ID: 0.25 (mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 307877 Units: mg/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00163	#2 Diesel (C10-C24)	1.0	JH	0.12	0.070
STL00299	Motor Oil (>C24-C36)	1.9		0.38	0.10

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	103		50-150

*mw 8-29-19*



FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87927-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070403 Lab Sample ID: 580-87927-8  
 Matrix: Water Lab File ID: 080819A\_008.D  
 Analysis Method: NWTPH-Dx Date Collected: 07/23/2019 12:22  
 Extraction Method: 3510C Date Extracted: 08/06/2019 13:29  
 Sample wt/vol: 966.1(mL) Date Analyzed: 08/08/2019 13:56  
 Con. Extract Vol.: 1.0(mL) Dilution Factor: 1  
 Injection Volume: 1(uL) GC Column: ZB-1HT ID: 0.25(mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 307877 Units: mg/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00163	#2 Diesel (C10-C24)	0.13	JA	0.11	0.067
STL00299	Motor Oil (>C24-C36)	0.31	JR	0.36	0.099

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	92		50-150

*Jan 87919*



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### MEMORANDUM

DATE: August 29, 2019

TO: Seth Wing, START-IV Project Manager, E & E, Seattle, Washington

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington *MW*

SUBJ: **Organic Data Quality Assurance Review, May Creek Removal Action Site, Renton, Washington**

REF: TO: TO-68HE0718F0470 PAN: 1004530.0470.001.01

The data quality assurance review of 9 water samples collected from the May Creek Removal Action site located in Renton, Washington, has been completed. Analysis for Extended Gasoline Range Total Petroleum Hydrocarbons (Ecology Method NWTPH-Gx) analyses was performed by Test America, Inc., Tacoma, Washington. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Manual Process (S2B/4VM).

The samples were numbered:

19070401	19070402	19070403	19070404	19070405
19070406	19070407	19070408	19070611	

#### Data Qualifications:

##### 1. Sample Holding Times: Acceptable.

The samples were maintained and received within the QC limits of  $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ . The samples were collected on July 23 and 24, 2019, were received at the laboratory on July 25, 2019, and were analyzed by August 3, 2019, therefore meeting QC criteria of less than 14 days between collection and analysis for preserved water samples.

##### 2. Initial Calibration: Acceptable.

Calculations were verified as correct. All relative percent differences (RPDs) were less than or equal to the laboratory control limits.

##### 3. Continuing Calibration: Acceptable.

Calculations were verified as correct. All percent differences were less than or equal to the laboratory control limits.

##### 4. Blanks: Acceptable.

A method blank was analyzed at the required frequency of every 12 hours for each matrix,

**4. Blanks: Acceptable.**

A method blank was analyzed at the required frequency of every 12 hours for each matrix, preparation technique, and analysis system. Gasoline-range TPHs were not detected in the method blank or in the trip blank.

**5. System Monitoring Compounds (SMC): Satisfactory.**

All recoveries of the SMCs were greater than 10% and within QC limits except one low recovery in the MS; no actions were taken based on this outlier alone.

**6. Matrix Spike (MS) and MS Duplicate (MSD) Analyses: Satisfactory.**

MS and MSD results were within laboratory QC limits except Gasoline failed the recovery criteria low for the MS/MSD of sample 19070401. In conjunction with the low SMC recovery and the duplicate outlier, the sample quantitation limit in sample 19070401 was qualified as an estimated quantity with a low bias (UJL).

**7. Blank Spikes (BS) and BS Duplicate (BSD) Analyses: Acceptable.**

BS and BSD results were within laboratory QC limits.

**8. Duplicates: Satisfactory.**

All duplicate and spike duplicate results were within laboratory QC limits except the MS/MSD result; no actions were taken based on this outlier.

**9. Quantitation and Quantitation Limits: Acceptable.**

Sample quantitation and sample quantitation limits were correctly calculated.

**10. Laboratory Contact: Not Required.**

No laboratory contact was required.

**11. Overall Assessment of Data for Use**

A total of 9 results were validated in this data memorandum. No sample results were qualified as estimated quantities (J) based on duplicate precision outliers, holding time outliers, incorrect sample containers, or sample temperature outliers. One sample result was qualified as an estimated quantity based on spike accuracy outliers. No sample results were rejected (R).

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the analytical method(s), the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, and/or the Office of Emergency and Remedial Response Publication "National Functional Guidelines for Superfund Organic Methods Data Review, January 2017". Based upon the information provided, the data are acceptable for

use with the above stated data qualifications.

Data Qualifiers and Definitions

- H - The sample result is biased high.
- J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
- K - The bias of the sample is not known.
- L - The sample result is biased low.
- Q - Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.
- R - The data is rejected and unusable. The analyte may or may not be present in the sample.
- U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.

FORM I  
GC VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87927-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070401 Lab Sample ID: 580-87927-1  
 Matrix: Water Lab File ID: 08021923.D  
 Analysis Method: NWTPH-Gx Date Collected: 07/23/2019 10:27  
 Sample wt/vol: 5(mL) Date Analyzed: 08/03/2019 05:38  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: RTX-VRX ID: 0.45 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 307419 Units: mg/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00228	Gasoline	ND <del>P1 P2</del>		0.25	<u>0.10</u>

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	86		50-150
98-08-8	Trifluorotoluene (Surr)	59		50-150

*Handwritten:* 580-879-19



FORM I  
GC VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87927-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070402 Lab Sample ID: 580-87927-2  
 Matrix: Water Lab File ID: 08021926.D  
 Analysis Method: NWTPH-Gx Date Collected: 07/23/2019 10:57  
 Sample wt/vol: 5(mL) Date Analyzed: 08/03/2019 06:51  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: RTX-VRX ID: 0.45 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 307419 Units: mg/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00228	Gasoline	ND		0.25	0.10

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	102		50-150
98-08-8	Trifluorotoluene (Surr)	87		50-150

*Mw 82919*

FORM I  
GC VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87927-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070407 Lab Sample ID: 580-87927-3  
 Matrix: Water Lab File ID: 08021928.D  
 Analysis Method: NWTPH-Gx Date Collected: 07/24/2019 10:10  
 Sample wt/vol: 5(mL) Date Analyzed: 08/03/2019 07:40  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: RTX-VRX ID: 0.45 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 307419 Units: mg/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00228	Gasoline	ND		0.25	0.10

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	89		50-150
98-08-8	Trifluorotoluene (Surr)	87		50-150

*Jan 829-19*

FORM I  
GC VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87927-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070404 Lab Sample ID: 580-87927-4  
 Matrix: Water Lab File ID: 08021929.D  
 Analysis Method: NWTPH-Gx Date Collected: 07/23/2019 14:00  
 Sample wt/vol: 5(mL) Date Analyzed: 08/03/2019 08:05  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: RTX-VRX ID: 0.45 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 307419 Units: mg/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00228	Gasoline	ND		0.25	0.10

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	88		50-150
98-08-8	Trifluorotoluene (Surr)	90		50-150

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FORM I  
GC VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87927-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070405 Lab Sample ID: 580-87927-5  
 Matrix: Water Lab File ID: 08021930.D  
 Analysis Method: NWTPH-Gx Date Collected: 07/23/2019 16:42  
 Sample wt/vol: 5(mL) Date Analyzed: 08/03/2019 08:30  
 Soil Aliquot Vol.: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: RTX-VRX ID: 0.45 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 307419 Units: mg/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00228	Gasoline	ND		0.25	0.10

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	90		50-150
98-08-8	Trifluorotoluene (Surr)	77		50-150

*mw 829-19*

FORM I  
GC VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87927-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070406 Lab Sample ID: 580-87927-6  
 Matrix: Water Lab File ID: 08021931.D  
 Analysis Method: NWTPH-Gx Date Collected: 07/23/2019 18:41  
 Sample wt/vol: 5 (mL) Date Analyzed: 08/03/2019 08:55  
 Soil Aliquot Vol.: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: RTX-VRX ID: 0.45 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 307419 Units: mg/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00228	Gasoline	ND <i>mu</i>		0.25 <i>U</i>	0.10

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	94		50-150
98-08-8	Trifluorotoluene (Surr)	87		50-150

*mw 829-19*

FORM I  
GC VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87927-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070408 Lab Sample ID: 580-87927-7  
 Matrix: Water Lab File ID: 08021932.D  
 Analysis Method: NWTPH-Gx Date Collected: 07/24/2019 12:10  
 Sample wt/vol: 5(mL) Date Analyzed: 08/03/2019 09:19  
 Soil Aliquot Vol.: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: RTX-VRX ID: 0.45 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 307419 Units: mg/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00228	Gasoline	<u>ND</u>		0.25	0.10

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	94		50-150
98-08-8	Trifluorotoluene (Surr)	90		50-150

*Handwritten signature:* JW 8-29-19

FORM I  
GC VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87927-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070403 Lab Sample ID: 580-87927-8  
 Matrix: Water Lab File ID: 08021933.D  
 Analysis Method: NWTPH-Gx Date Collected: 07/23/2019 12:22  
 Sample wt/vol: 5(mL) Date Analyzed: 08/03/2019 09:44  
 Soil Aliquot Vol.: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: RTX-VRX ID: 0.45 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 307419 Units: mg/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00228	Gasoline	ND <i>mc</i>		0.25	0.10

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	96		50-150
98-08-8	Trifluorotoluene (Surr)	77		50-150

*mw 8-29-19*

FORM I  
GC VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87927-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070611 Lab Sample ID: 580-87927-9  
 Matrix: Water Lab File ID: 08031918.D  
 Analysis Method: NWTPH-Gx Date Collected: 07/24/2019 00:01  
 Sample wt/vol: 5(mL) Date Analyzed: 08/03/2019 18:42  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: RTX-VRX ID: 0.45(mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 307426 Units: mg/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00228	Gasoline	ND		0.25	0.10

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	90		50-150
98-08-8	Trifluorotoluene (Surr)	101		50-150

*Me 8-20-19*



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### MEMORANDUM

DATE: August 29, 2019

TO: Seth Wing, START-IV Project Manager, E & E, Seattle, WA

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington *MW*

SUBJ: **Inorganic Data Quality Assurance Review, May Creek Removal Action Site, Renton, Washington**

REF: TO: TO-68HE0718F0470 PAN: 1004530.0470.001.01

The data quality assurance review of 8 water samples collected from the May Creek Removal Action site in Renton, Washington, has been completed. Target Analyte List (TAL) metals analyses (EPA Methods 6010 and 7470) were performed by Test America, Inc., Tacoma, Washington. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Manual Process (S2B/4VM).

The samples were numbered:	19070401	19070402	19070403	19070404
	19070405	19070406	19070407	19070408

#### Data Qualifications:

##### 1. **Sample Holding Times: Acceptable.**

The samples were maintained at  $< 6^{\circ}\text{C}$  (only applies to mercury). The samples were collected on July 23 and 24, 2019, and were analyzed by August 2, 2019, therefore meeting QC criteria of less than 6 months between collection, extraction, and analysis (28 days for mercury).

##### 2. **Initial and Continuing Calibration: Acceptable.**

A minimum of one calibration standard and a blank were analyzed at the beginning of the ICP analysis sequence and after every 10 samples. No results were greater than 110% of the highest calibration standard. All ICP recoveries were within the QC limits. All AA recoveries were within QC limits and the initial calibration correlation coefficient was  $> 0.995$ .

##### 3. **Blanks: Satisfactory.**

A preparation blank was analyzed for each 20 samples or per matrix per concentration level. Blanks were analyzed after each Initial or Continuing Calibration Verification. There were no detections in any blanks that potentially affected sample results except cadmium in the method blank and antimony and thallium in the CCB on August 2, 2019 at 11:21. Associated positive sample results less than the reporting limit were qualified as not detected (U).

##### 4. **ICP Interference Check Sample: Acceptable.**

An Interference Check Sample (ICS) was analyzed at the beginning of each sequence or at least twice every 8 hours, whichever was more frequent. All applicable ICS (solution AB) results were within

QC limits of 80% - 120% recovery.

**5. Duplicate Analysis: Acceptable.**

Laboratory duplicate and spike duplicate analyses were performed per SDG or per matrix per concentration level, whichever was more frequent. All duplicate results were within QC limits.

**6. Blank Spike (BS) and Matrix Spike (MS) Analysis: Acceptable.**

All BS and MS results were within the established control limits.

**7. Serial Dilution Analysis: Acceptable.**

All serial dilution results were within the QC limits.

**8. Overall Assessment of Data for Use**

A total of 184 results were validated in this data memorandum. No sample results were qualified as estimated quantities (J) based on duplicate precision outliers, holding time outliers, spike accuracy outliers, incorrect sample containers, sample temperature outliers, or serial dilution outliers. No sample results were rejected (R).

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the analytical method(s), the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, and/or the Office of Emergency and Remedial Response Publication "National Functional Guidelines for Superfund Inorganic Methods Data Review, January 2017". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

H - The sample result is biased high.

J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

K - The bias of the sample is not known.

L - The sample result is biased low.

Q - Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.

R - The data is rejected and unusable. The analyte may or may not be present in the sample.

U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.

UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.

1A-IN  
INORGANIC ANALYSIS DATA SHEET  
METALS

Client Sample ID: 19070401

Lab Sample ID: 580-87927-1

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87927-1

SDG ID.:

Matrix: Water

Date Sampled: 07/23/2019 10:27

Reporting Basis: WET

Date Received: 07/25/2019 10:30

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7439-97-6	Mercury	ND	0.00030	0.00015	mg/L			1	7470A

*MW 8-29-19*



1A-IN  
INORGANIC ANALYSIS DATA SHEET  
METALS - TOTAL RECOVERABLE

Client Sample ID: 19070401

Lab Sample ID: 580-87927-1

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87927-1

SDG ID.:

Matrix: Water

Date Sampled: 07/23/2019 10:27

Reporting Basis: WET

Date Received: 07/25/2019 10:30

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7429-90-5	Aluminum	ND	1.5	0.11	mg/L			1	6010D
7440-70-2	Calcium	10	1.1	0.16	mg/L			1	6010D
7439-89-6	Iron	ND	0.50	0.14	mg/L			1	6010D
7439-95-4	Magnesium	3.6	1.1	0.13	mg/L			1	6010D
7440-09-7	Potassium	0.88	3.3	0.41	mg/L	JQ		1	6010D
7440-23-5	Sodium	7.0	2.0	0.33	mg/L			1	6010D
7440-36-0	Antimony	0.00024	0.00040	0.00011	mg/L	JQ		1	6020B
7440-38-2	Arsenic	0.00037	0.0010	0.00020	mg/L	JQ		1	6020B
7440-39-3	Barium	0.0066	0.0012	0.00021	mg/L			1	6020B
7440-41-7	Beryllium	ND	0.00040	0.000071	mg/L			1	6020B
7440-43-9	Cadmium	ND	0.00040	0.00010	mg/L			1	6020B
7440-47-3	Chromium	0.0012	0.00040	0.00017	mg/L			1	6020B
7440-48-4	Cobalt	0.00035	0.00040	0.000039	mg/L	JQ		1	6020B
7440-50-8	Copper	0.00090	0.0020	0.00060	mg/L	J		1	6020B
7439-92-1	Lead	0.00020	0.00080	0.00020	mg/L	J		1	6020B
7439-96-5	Manganese	0.048	0.0020	0.00046	mg/L			1	6020B
7440-02-0	Nickel	0.0014	0.0030	0.00012	mg/L	JQ		1	6020B
7782-49-2	Selenium	ND	0.0080	0.0021	mg/L			1	6020B
7440-22-4	Silver	ND	0.00040	0.000055	mg/L			1	6020B
7440-28-0	Thallium	ND	0.0010	0.000065	mg/L			1	6020B
7440-62-2	Vanadium	0.0014	0.0040	0.00046	mg/L	JQ		1	6020B
7440-66-6	Zinc	0.0022	0.0070	0.0019	mg/L	JQ		1	6020B

JW 8/24/19

1A-IN  
INORGANIC ANALYSIS DATA SHEET  
METALS

Client Sample ID: 19070402

Lab Sample ID: 580-87927-2

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87927-1

SDG ID.:

Matrix: Water

Date Sampled: 07/23/2019 10:57

Reporting Basis: WET

Date Received: 07/25/2019 10:30

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7439-97-6	Mercury	ND	0.00030	0.00015	mg/L			1	7470A

*mw 8/29/19*

1A-IN  
INORGANIC ANALYSIS DATA SHEET  
METALS - TOTAL RECOVERABLE

Client Sample ID: 19070402

Lab Sample ID: 580-87927-2

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87927-1

SDG ID.:

Matrix: Water

Date Sampled: 07/23/2019 10:57

Reporting Basis: WET

Date Received: 07/25/2019 10:30

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7429-90-5	Aluminum	ND	1.5	0.11	mg/L			1	6010D
7440-70-2	Calcium	67	1.1	0.16	mg/L			1	6010D
7439-89-6	Iron	43	0.50	0.14	mg/L			1	6010D
7439-95-4	Magnesium	14	1.1	0.13	mg/L			1	6010D
7440-09-7	Potassium	11	3.3	0.41	mg/L			1	6010D
7440-23-5	Sodium	14	2.0	0.33	mg/L			1	6010D
7440-36-0	Antimony	0.00031	0.00040	0.00011	mg/L	JQ		1	6020B
7440-38-2	Arsenic	0.0020	0.0010	0.00020	mg/L			1	6020B
7440-39-3	Barium	0.14	0.0012	0.00021	mg/L			1	6020B
7440-41-7	Beryllium	ND	0.00040	0.000071	mg/L			1	6020B
7440-43-9	Cadmium	0.00012	0.00040	0.00010	mg/L	JQ	B	1	6020B
7440-47-3	Chromium	0.0015	0.00040	0.00017	mg/L			1	6020B
7440-48-4	Cobalt	0.0017	0.00040	0.000039	mg/L			1	6020B
7440-50-8	Copper	0.00079	0.0020	0.00060	mg/L	JQ		1	6020B
7439-92-1	Lead	ND	0.00080	0.00020	mg/L			1	6020B
7439-96-5	Manganese	7.3	0.0020	0.00046	mg/L			1	6020B
7440-02-0	Nickel	0.0013	0.0030	0.00012	mg/L	JQ		1	6020B
7782-49-2	Selenium	ND	0.0080	0.0021	mg/L			1	6020B
7440-22-4	Silver	ND	0.00040	0.000055	mg/L			1	6020B
7440-28-0	Thallium	ND	0.0010	0.000065	mg/L			1	6020B
7440-62-2	Vanadium	0.0039	0.0040	0.00046	mg/L	JQ		1	6020B
7440-66-6	Zinc	0.025	0.0070	0.0019	mg/L			1	6020B

JW 8/29/19

1A-IN  
INORGANIC ANALYSIS DATA SHEET  
METALS

Client Sample ID: 19070407

Lab Sample ID: 580-87927-3

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87927-1

SDG ID.:

Matrix: Water

Date Sampled: 07/24/2019 10:10

Reporting Basis: WET

Date Received: 07/25/2019 10:30

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7439-97-6	Mercury	ND	0.00030	0.00015	mg/L			1	7470A

mw 829-19

1A-IN  
INORGANIC ANALYSIS DATA SHEET  
METALS - TOTAL RECOVERABLE

Client Sample ID: 19070407

Lab Sample ID: 580-87927-3

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87927-1

SDG ID.:

Matrix: Water

Date Sampled: 07/24/2019 10:10

Reporting Basis: WET

Date Received: 07/25/2019 10:30

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7429-90-5	Aluminum	7.0	1.5	0.11	mg/L			1	6010D
7440-70-2	Calcium	58	1.1	0.16	mg/L			1	6010D
7439-89-6	Iron	10	0.50	0.14	mg/L			1	6010D
7439-95-4	Magnesium	31	1.1	0.13	mg/L			1	6010D
7440-09-7	Potassium	6.4	3.3	0.41	mg/L			1	6010D
7440-23-5	Sodium	24	2.0	0.33	mg/L			1	6010D
7440-36-0	Antimony	0.00092	0.00040	0.00011	mg/L			1	6020B
7440-38-2	Arsenic	0.0028	0.0010	0.00020	mg/L			1	6020B
7440-39-3	Barium	0.067	0.0012	0.00021	mg/L			1	6020B
7440-41-7	Beryllium	0.00027	0.00040	0.000071	mg/L	JQ		1	6020B
7440-43-9	Cadmium	<del>0.00024</del>	0.00040	0.00010	mg/L	JQ	EW	1	6020B
7440-47-3	Chromium	0.015	0.00040	0.00017	mg/L			1	6020B
7440-48-4	Cobalt	0.0034	0.00040	0.000039	mg/L			1	6020B
7440-50-8	Copper	0.013	0.0020	0.00060	mg/L			1	6020B
7439-92-1	Lead	0.0025	0.00080	0.00020	mg/L			1	6020B
7439-96-5	Manganese	0.47	0.0020	0.00046	mg/L			1	6020B
7440-02-0	Nickel	0.013	0.0030	0.00012	mg/L			1	6020B
7782-49-2	Selenium	ND	0.0080	0.0021	mg/L			1	6020B
7440-22-4	Silver	ND	0.00040	0.000055	mg/L			1	6020B
7440-28-0	Thallium	<del>0.000074</del>	0.0010	0.000065	mg/L	JQ		1	6020B
7440-62-2	Vanadium	0.016	0.0040	0.00046	mg/L			1	6020B
7440-66-6	Zinc	0.026	0.0070	0.0019	mg/L			1	6020B

MW 829-19



1A-IN  
INORGANIC ANALYSIS DATA SHEET  
METALS

Client Sample ID: 19070404

Lab Sample ID: 580-87927-4

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87927-1

SDG ID.:

Matrix: Water

Date Sampled: 07/23/2019 14:00

Reporting Basis: WET

Date Received: 07/25/2019 10:30

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7439-97-6	Mercury	ND <i>12</i>	0.00030	0.00015	mg/L			1	7470A

*John 828-19*

1A-IN  
INORGANIC ANALYSIS DATA SHEET  
METALS - TOTAL RECOVERABLE

Client Sample ID: 19070404

Lab Sample ID: 580-87927-4

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87927-1

SDG ID.:

Matrix: Water

Date Sampled: 07/23/2019 14:00

Reporting Basis: WET

Date Received: 07/25/2019 10:30

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7429-90-5	Aluminum	ND	1.5	0.11	mg/L			1	6010D
7440-70-2	Calcium	41	1.1	0.16	mg/L			1	6010D
7439-89-6	Iron	ND	0.50	0.14	mg/L			1	6010D
7439-95-4	Magnesium	10	1.1	0.13	mg/L			1	6010D
7440-09-7	Potassium	2.1	3.3	0.41	mg/L	JQ		1	6010D
7440-23-5	Sodium	23	2.0	0.33	mg/L			1	6010D
7440-36-0	Antimony	0.00036	0.00040	0.00011	mg/L	JQ		1	6020B
7440-38-2	Arsenic	0.00061	0.0010	0.00020	mg/L	JQ		1	6020B
7440-39-3	Barium	0.029	0.0012	0.00021	mg/L	JQ		1	6020B
7440-41-7	Beryllium	0.000072	0.00040	0.000071	mg/L	JQ		1	6020B
7440-43-9	Cadmium	ND	0.00040	0.00010	mg/L			1	6020B
7440-47-3	Chromium	0.00050	0.00040	0.00017	mg/L			1	6020B
7440-48-4	Cobalt	0.0020	0.00040	0.000039	mg/L			1	6020B
7440-50-8	Copper	0.0011	0.0020	0.00060	mg/L	JQ		1	6020B
7439-92-1	Lead	ND	0.00080	0.00020	mg/L			1	6020B
7439-96-5	Manganese	0.28	0.0020	0.00046	mg/L			1	6020B
7440-02-0	Nickel	0.0063	0.0030	0.00012	mg/L			1	6020B
7782-49-2	Selenium	ND	0.0080	0.0021	mg/L			1	6020B
7440-22-4	Silver	ND	0.00040	0.000055	mg/L			1	6020B
7440-28-0	Thallium	ND	0.0010	0.000065	mg/L			1	6020B
7440-62-2	Vanadium	0.0017	0.0040	0.00046	mg/L	JQ		1	6020B
7440-66-6	Zinc	0.015	0.0070	0.0019	mg/L			1	6020B

*2019 8-29-19*

1A-IN  
INORGANIC ANALYSIS DATA SHEET  
METALS

Client Sample ID: 19070405

Lab Sample ID: 580-87927-5

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87927-1

SDG ID.:

Matrix: Water

Date Sampled: 07/23/2019 16:42

Reporting Basis: WET

Date Received: 07/25/2019 10:30

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7439-97-6	Mercury	ND	0.00030	0.00015	mg/L			1	7470A

*7/25/19*



1A-IN  
INORGANIC ANALYSIS DATA SHEET  
METALS - TOTAL RECOVERABLE

Client Sample ID: 19070405

Lab Sample ID: 580-87927-5

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87927-1

SDG ID.:

Matrix: Water

Date Sampled: 07/23/2019 16:42

Reporting Basis: WET

Date Received: 07/25/2019 10:30

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7429-90-5	Aluminum	ND	1.5	0.11	mg/L			1	6010D
7440-70-2	Calcium	41	1.1	0.16	mg/L			1	6010D
7439-89-6	Iron	35	0.50	0.14	mg/L			1	6010D
7439-95-4	Magnesium	13	1.1	0.13	mg/L			1	6010D
7440-09-7	Potassium	16	3.3	0.41	mg/L			1	6010D
7440-23-5	Sodium	15	2.0	0.33	mg/L			1	6010D
7440-36-0	Antimony	0.00034	0.00040	0.00011	mg/L	JQ		1	6020B
7440-38-2	Arsenic	0.0034	0.0010	0.00020	mg/L			1	6020B
7440-39-3	Barium	0.16	0.0012	0.00021	mg/L			1	6020B
7440-41-7	Beryllium	ND	0.00040	0.000071	mg/L			1	6020B
7440-43-9	Cadmium	ND	0.00040	0.00010	mg/L			1	6020B
7440-47-3	Chromium	0.0015	0.00040	0.00017	mg/L			1	6020B
7440-48-4	Cobalt	0.0082	0.00040	0.000039	mg/L			1	6020B
7440-50-8	Copper	ND	0.0020	0.00060	mg/L			1	6020B
7439-92-1	Lead	ND	0.00080	0.00020	mg/L			1	6020B
7439-96-5	Manganese	4.7	0.0020	0.00046	mg/L			1	6020B
7440-02-0	Nickel	0.0025	0.0030	0.00012	mg/L	JQ		1	6020B
7782-49-2	Selenium	ND	0.0080	0.0021	mg/L			1	6020B
7440-22-4	Silver	ND	0.00040	0.000055	mg/L			1	6020B
7440-28-0	Thallium	ND	0.0010	0.000065	mg/L			1	6020B
7440-62-2	Vanadium	0.0034	0.0040	0.00046	mg/L	JQ		1	6020B
7440-66-6	Zinc	0.0079	0.0070	0.0019	mg/L			1	6020B

NW 879-19

1A-IN  
INORGANIC ANALYSIS DATA SHEET  
METALS

Client Sample ID: 19070406

Lab Sample ID: 580-87927-6

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87927-1

SDG ID.:

Matrix: Water

Date Sampled: 07/23/2019 18:41

Reporting Basis: WET

Date Received: 07/25/2019 10:30

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7439-97-6	Mercury	ND	0.00030	0.00015	mg/L			1	7470A

JAN 82919

1A-IN  
INORGANIC ANALYSIS DATA SHEET  
METALS - TOTAL RECOVERABLE

Client Sample ID: 19070406

Lab Sample ID: 580-87927-6

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87927-1

SDG ID.:

Matrix: Water

Date Sampled: 07/23/2019 18:41

Reporting Basis: WET

Date Received: 07/25/2019 10:30

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7429-90-5	Aluminum	ND	1.5	0.11	mg/L			1	6010D
7440-70-2	Calcium	78	1.1	0.16	mg/L			1	6010D
7439-89-6	Iron	ND	0.50	0.14	mg/L			1	6010D
7439-95-4	Magnesium	33	1.1	0.13	mg/L			1	6010D
7440-09-7	Potassium	2.9	3.3	0.41	mg/L	JQ		1	6010D
7440-23-5	Sodium	22	2.0	0.33	mg/L			1	6010D
7440-36-0	Antimony	0.00046	0.00040	0.00011	mg/L			1	6020B
7440-38-2	Arsenic	0.00098	0.0010	0.00020	mg/L	JQ		1	6020B
7440-39-3	Barium	0.046	0.0012	0.00021	mg/L			1	6020B
7440-41-7	Beryllium	ND	0.00040	0.000071	mg/L			1	6020B
7440-43-9	Cadmium	0.00012	0.00040	0.00010	mg/L	JQ		1	6020B
7440-47-3	Chromium	0.00055	0.00040	0.00017	mg/L			1	6020B
7440-48-4	Cobalt	0.0011	0.00040	0.000039	mg/L			1	6020B
7440-50-8	Copper	0.0035	0.0020	0.00060	mg/L			1	6020B
7439-92-1	Lead	ND	0.00080	0.00020	mg/L			1	6020B
7439-96-5	Manganese	0.55	0.0020	0.00046	mg/L			1	6020B
7440-02-0	Nickel	0.023	0.0030	0.00012	mg/L			1	6020B
7782-49-2	Selenium	ND	0.0080	0.0021	mg/L			1	6020B
7440-22-4	Silver	ND	0.00040	0.000055	mg/L			1	6020B
7440-28-0	Thallium	ND	0.0010	0.000065	mg/L			1	6020B
7440-62-2	Vanadium	0.0025	0.0040	0.00046	mg/L	JQ		1	6020B
7440-66-6	Zinc	0.0061	0.0070	0.0019	mg/L	JQ		1	6020B

580-87927-1

1A-IN  
INORGANIC ANALYSIS DATA SHEET  
METALS

Client Sample ID: 19070408

Lab Sample ID: 580-87927-7

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87927-1

SDG ID.:

Matrix: Water

Date Sampled: 07/24/2019 12:10

Reporting Basis: WET

Date Received: 07/25/2019 10:30

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7439-97-6	Mercury	ND	0.00030	0.00015	mg/L			1	7470A

*Jan 229/19*



1A-IN  
INORGANIC ANALYSIS DATA SHEET  
METALS - TOTAL RECOVERABLE

Client Sample ID: 19070408

Lab Sample ID: 580-87927-7

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87927-1

SDG ID.:

Matrix: Water

Date Sampled: 07/24/2019 12:10

Reporting Basis: WET

Date Received: 07/25/2019 10:30

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7429-90-5	Aluminum	ND	1.5	0.11	mg/L			1	6010D
7440-70-2	Calcium	140	1.1	0.16	mg/L			1	6010D
7439-89-6	Iron	ND	0.50	0.14	mg/L			1	6010D
7439-95-4	Magnesium	53	1.1	0.13	mg/L			1	6010D
7440-09-7	Potassium	5.8	3.3	0.41	mg/L			1	6010D
7440-23-5	Sodium	41	2.0	0.33	mg/L			1	6010D
7440-36-0	Antimony	0.00086	0.00040	0.00011	mg/L			1	6020B
7440-38-2	Arsenic	0.0015	0.0010	0.00020	mg/L			1	6020B
7440-39-3	Barium	0.073	0.0012	0.00021	mg/L			1	6020B
7440-41-7	Beryllium	ND	0.00040	0.000071	mg/L			1	6020B
7440-43-9	Cadmium	0.00022	0.00040	0.00010	mg/L	J	Q	1	6020B
7440-47-3	Chromium	0.00061	0.00040	0.00017	mg/L			1	6020B
7440-48-4	Cobalt	0.012	0.00040	0.000039	mg/L			1	6020B
7440-50-8	Copper	0.011	0.0020	0.00060	mg/L			1	6020B
7439-92-1	Lead	ND	0.00080	0.00020	mg/L			1	6020B
7439-96-5	Manganese	6.5	0.0020	0.00046	mg/L			1	6020B
7440-02-0	Nickel	0.033	0.0030	0.00012	mg/L			1	6020B
7782-49-2	Selenium	ND	0.0080	0.0021	mg/L			1	6020B
7440-22-4	Silver	ND	0.00040	0.000055	mg/L			1	6020B
7440-28-0	Thallium	0.000079	0.0010	0.000065	mg/L	J	Q	1	6020B
7440-62-2	Vanadium	0.0039	0.0040	0.00046	mg/L			1	6020B
7440-66-6	Zinc	0.016	0.0070	0.0019	mg/L			1	6020B

MW 8/24/19

1A-IN  
INORGANIC ANALYSIS DATA SHEET  
METALS

Client Sample ID: 19070403

Lab Sample ID: 580-87927-8

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87927-1

SDG ID.:

Matrix: Water

Date Sampled: 07/23/2019 12:22

Reporting Basis: WET

Date Received: 07/25/2019 10:30

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7439-97-6	Mercury	ND	0.00030	0.00015	mg/L			1	7470A

*Ma 879-19*

1A-IN  
INORGANIC ANALYSIS DATA SHEET  
METALS - TOTAL RECOVERABLE

Client Sample ID: 19070403

Lab Sample ID: 580-87927-8

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87927-1

SDG ID.:

Matrix: Water

Date Sampled: 07/23/2019 12:22

Reporting Basis: WET

Date Received: 07/25/2019 10:30

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7429-90-5	Aluminum	ND <i>W</i>	1.5	0.11	mg/L			1	6010D
7440-70-2	Calcium	64	1.1	0.16	mg/L			1	6010D
7439-89-6	Iron	35	0.50	0.14	mg/L			1	6010D
7439-95-4	Magnesium	14	1.1	0.13	mg/L			1	6010D
7440-09-7	Potassium	10	3.3	0.41	mg/L			1	6010D
7440-23-5	Sodium	13	2.0	0.33	mg/L			1	6010D
7440-36-0	Antimony	0.00029 <i>W</i>	0.00040	0.00011	mg/L	<i>JQ</i>		1	6020B
7440-38-2	Arsenic	0.0019	0.0010	0.00020	mg/L			1	6020B
7440-39-3	Barium	0.13	0.0012	0.00021	mg/L			1	6020B
7440-41-7	Beryllium	ND <i>W</i>	0.00040	0.000071	mg/L			1	6020B
7440-43-9	Cadmium	0.00011 <i>W</i>	0.00040	0.00010	mg/L	<i>JQ</i>	<i>B</i>	1	6020B
7440-47-3	Chromium	0.0013	0.00040	0.00017	mg/L			1	6020B
7440-48-4	Cobalt	0.0026	0.00040	0.000039	mg/L			1	6020B
7440-50-8	Copper	0.0012	0.0020	0.00060	mg/L	<i>JQ</i>		1	6020B
7439-92-1	Lead	ND <i>W</i>	0.00080	0.00020	mg/L			1	6020B
7439-96-5	Manganese	6.9	0.0020	0.00046	mg/L			1	6020B
7440-02-0	Nickel	0.0017	0.0030	0.00012	mg/L	<i>JQ</i>		1	6020B
7782-49-2	Selenium	ND	0.0080	0.0021	mg/L			1	6020B
7440-22-4	Silver	ND	0.00040	0.000055	mg/L			1	6020B
7440-28-0	Thallium	ND <i>W</i>	0.0010	0.000065	mg/L			1	6020B
7440-62-2	Vanadium	0.0034	0.0040	0.00046	mg/L	<i>JQ</i>		1	6020B
7440-66-6	Zinc	0.016	0.0070	0.0019	mg/L			1	6020B

*Jan 8-29-19*





## ecology and environment, inc.

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### MEMORANDUM

DATE: August 29, 2019

TO: Seth Wing, START-IV Project Manager, E & E, Seattle, WA

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington *MW*

SUBJ: **Organic Data Quality Assurance Review, May Creek Removal Action Site, Renton, Washington**

REF: TO: TO-68HE0718F0470 PAN: 1004530.0470.001.01

The data quality assurance review of 8 water samples collected from the May Creek Removal Action site located in Renton, Washington, has been completed. Analyses for Chlorinated Pesticides (EPA Method 8081) and Polychlorinated Biphenyls (PCBs - EPA Method 8082) were performed by Test America, Inc., Tacoma, Washington. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Manual Process (S2B/4VM).

The samples were numbered:	19070401	19070402	19070403	19070404
	19070405	19070406	19070407	19070408

#### Data Qualifications:

##### 1. **Sample Holding Times: Acceptable.**

The samples were maintained at 0°C to 6°C. The samples were collected on July 23 and 24, 2019, extracted by July 30, 2019, and were analyzed by August 2, 2019, therefore meeting QC criteria of less than 14 days between collection and soil sample extraction and less than 40 days between extraction and analysis. There are no holding time limits for Method 8082 PCBs.

##### 2. **Instrument Performance: Acceptable.**

The surrogate retention time percent difference between the initial calibration standards and the remaining standards and samples was  $\leq 0.3\%$  for capillary column analyses.

##### 3. **Initial and Continuing Calibration: Satisfactory.**

All initial calibration relative standard deviations (RSDs) were within QC limits. All continuing calibration % differences (% D) were within QC limits except some high and low pesticide and PCB results on one column only (no actions were taken based on these outliers as the associated analytes were not detected in the samples) and endrin with a high recovery on both columns associated with sample 19070407 (no actions were taken based on this outlier as endrin was not detected in this sample).

The CCVIS 580-307263/7 continuing calibration verification (CCV) standard associated with batch 580-307263 recovered outside acceptance criteria for %D for the SMC Tetrachloro-m-xylene. Since



the %Recovery is within the acceptance criteria for the surrogate in the CCV and associated samples, no actions were taken.

The continuing calibration verification (CCV) standard associated with batch 580-307329 recovered outside %Drift acceptance criteria for the DCB SMC. The %Recovery is within acceptance criteria for the surrogate in the CCV and associated samples; therefore, no actions were taken.

**4. Blanks: Satisfactory.**

A method blank was prepared at the required frequency of every time samples were extracted for each matrix and for each concentration level, or every 20 samples, whichever is greater, and for each analytical system. No target analytes were detected in the laboratory blanks.

**5. System Monitoring Compounds (SMCs): Acceptable.**

All recoveries of the SMCs were within QC limits.

**7. Blank Spike (BS) and Matrix Spike (MS) Analyses: Acceptable.**

BS and MS recoveries were within QC limits except Endosulfan I failed the recovery criteria low for the MS/MSD of sample 19070401. Sample matrix interference and/or non-homogeneity are suspected; therefore, no actions were taken.

**8. Duplicates: Acceptable.**

Relative Percent Differences (RPDs) of all spiked analytes were within the required control limits.

**9. Compound Identification: Acceptable.**

All positive sample results were dual-column confirmed with differences between the columns less than 40%.

**10. Target Compound Quantitation and Quantitation Limits: Acceptable.**

Sample results and quantitation limits were correctly calculated.

**11. Laboratory Contact**

No laboratory contact was required.

**12. Overall Assessment**

A total of 168 results were validated in this data memorandum. No sample results were qualified as estimated quantities (J) based on duplicate precision outliers, holding time outliers, spike accuracy outliers, incorrect sample containers, or sample temperature outliers. No sample results were rejected (R).

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the analytical method(s), the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, and/or the Office of Emergency and Remedial Response Publication "National Functional Guidelines for Superfund Organic Methods Data Review, January 2017". Based upon the information provided, the data are acceptable for

use with the above stated data qualifications.

#### Data Qualifiers and Definitions

- H - The sample result is biased high.
- J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
- K - The bias of the sample is not known.
- L - The sample result is biased low.
- Q - Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.
- R - The data is rejected and unusable. The analyte may or may not be present in the sample.
- U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.

FORM I  
PESTICIDES ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87927-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070401 Lab Sample ID: 580-87927-1  
 Matrix: Water Lab File ID: 45G080119b022.D  
 Analysis Method: 8081B Date Collected: 07/23/2019 10:27  
 Extraction Method: 3510C Date Extracted: 07/29/2019 11:46  
 Sample wt/vol: 1052.3(mL) Date Analyzed: 08/01/2019 18:58  
 Con. Extract Vol.: 10.0(mL) Dilution Factor: 1  
 Injection Volume: 1(uL) GC Column: ZB-CLPest-1 ID: 0.25(mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 307263 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
309-00-2	Aldrin	ND		0.023	0.0067
319-84-6	alpha-BHC	ND		0.017	0.0038
319-85-7	beta-BHC	ND		0.020	0.0048
319-86-8	delta-BHC	ND		0.014	0.0048
58-89-9	gamma-BHC (Lindane)	ND		0.019	0.0048
72-54-8	4,4'-DDD	ND		0.014	0.0057
72-55-9	4,4'-DDE	ND		0.0095	0.0029
50-29-3	4,4'-DDT	ND		0.019	0.0048
60-57-1	Dieldrin	ND		0.017	0.0048
33213-65-9	Endosulfan II	ND		0.023	0.0048
1031-07-8	Endosulfan sulfate	ND		0.019	0.0029
72-20-8	Endrin	ND		0.011	0.0029
7421-93-4	Endrin aldehyde	ND		0.057	0.032
76-44-8	Heptachlor	ND		0.014	0.0038
1024-57-3	Heptachlor epoxide	ND		0.019	0.0029
72-43-5	Methoxychlor	ND		0.095	0.0048
53494-70-5	Endrin ketone	ND		0.019	0.0019
8001-35-2	Toxaphene	ND		1.9	0.44
5103-71-9	cis-Chlordane	ND		0.026	0.0076
5103-74-2	trans-Chlordane	ND		0.019	0.0029

CAS NO.	SURROGATE	%REC	Q	LIMITS
877-09-8	Tetrachloro-m-xylene	34		33-120
2051-24-3	DCB Decachlorobiphenyl	69		45-127

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FORM I  
PESTICIDES ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87927-1  
SDG No.: \_\_\_\_\_  
Client Sample ID: 19070401 Lab Sample ID: 580-87927-1  
Matrix: Water Lab File ID: 45G080119b022.D  
Analysis Method: 8081B Date Collected: 07/23/2019 10:27  
Extraction Method: 3510C Date Extracted: 07/29/2019 11:46  
Sample wt/vol: 1052.3(mL) Date Analyzed: 08/01/2019 18:58  
Con. Extract Vol.: 10.0(mL) Dilution Factor: 1  
Injection Volume: 1(uL) GC Column: ZB-CLPest-2 ID: 0.25(mm)  
% Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
Analysis Batch No.: 307263 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
959-98-8	Endosulfan I	0.13	FL <i>flw</i>	0.019	0.0029

*mw 829-19*

FORM I  
PESTICIDES ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87927-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070402 Lab Sample ID: 580-87927-2  
 Matrix: Water Lab File ID: 45G080119b025.D  
 Analysis Method: 8081B Date Collected: 07/23/2019 10:57  
 Extraction Method: 3510C Date Extracted: 07/29/2019 11:46  
 Sample wt/vol: 963.8(mL) Date Analyzed: 08/01/2019 19:54  
 Con. Extract Vol.: 10.0(mL) Dilution Factor: 1  
 Injection Volume: 1(uL) GC Column: ZB-CLPest-1 ID: 0.25(mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 307263 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
309-00-2	Aldrin	ND		0.025	0.0073
319-84-6	alpha-BHC	ND		0.019	0.0042
319-85-7	beta-BHC	ND		0.022	0.0052
319-86-8	delta-BHC	ND		0.016	0.0052
58-89-9	gamma-BHC (Lindane)	ND		0.021	0.0052
72-54-8	4,4'-DDD	ND		0.016	0.0062
72-55-9	4,4'-DDE	ND		0.010	0.0031
50-29-3	4,4'-DDT	ND		0.021	0.0052
60-57-1	Dieldrin	ND		0.019	0.0052
959-98-8	Endosulfan I	0.017	J Q	0.021	0.0031
33213-65-9	Endosulfan II	ND		0.025	0.0052
1031-07-8	Endosulfan sulfate	ND		0.021	0.0031
72-20-8	Endrin	ND		0.012	0.0031
7421-93-4	Endrin aldehyde	ND		0.062	0.035
76-44-8	Heptachlor	ND		0.016	0.0042
1024-57-3	Heptachlor epoxide	ND		0.021	0.0031
72-43-5	Methoxychlor	ND		0.10	0.0052
53494-70-5	Endrin ketone	ND		0.021	0.0021
8001-35-2	Toxaphene	ND		2.1	0.48
5103-71-9	cis-Chlordane	ND		0.028	0.0083
5103-74-2	trans-Chlordane	ND		0.021	0.0031

CAS NO.	SURROGATE	%REC	Q	LIMITS
877-09-8	Tetrachloro-m-xylene	42		33-120
2051-24-3	DCB Decachlorobiphenyl	69		45-127

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FORM I  
PESTICIDES ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87927-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070407 Lab Sample ID: 580-87927-3  
 Matrix: Water Lab File ID: 45G080219a020.D  
 Analysis Method: 8081B Date Collected: 07/24/2019 10:10  
 Extraction Method: 3510C Date Extracted: 07/30/2019 15:18  
 Sample wt/vol: 172.2(mL) Date Analyzed: 08/02/2019 15:38  
 Con. Extract Vol.: 2.5(mL) Dilution Factor: 1  
 Injection Volume: 1(uL) GC Column: ZB-CLPest-1 ID: 0.25 (mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 307351 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
309-00-2	Aldrin	ND		0.035	0.010
319-84-6	alpha-BHC	ND		0.026	0.0058
319-85-7	beta-BHC	ND		0.030	0.0073
319-86-8	delta-BHC	ND		0.022	0.0073
58-89-9	gamma-BHC (Lindane)	ND		0.029	0.0073
72-54-8	4,4'-DDD	ND		0.022	0.0087
72-55-9	4,4'-DDE	ND		0.015	0.0044
50-29-3	4,4'-DDT	ND		0.029	0.0073
60-57-1	Dieldrin	ND		0.026	0.0073
959-98-8	Endosulfan I	ND		0.029	0.0044
33213-65-9	Endosulfan II	ND		0.035	0.0073
1031-07-8	Endosulfan sulfate	ND		0.029	0.0044
72-20-8	Endrin	ND		0.017	0.0044
7421-93-4	Endrin aldehyde	ND		0.087	0.049
76-44-8	Heptachlor	ND		0.022	0.0058
1024-57-3	Heptachlor epoxide	ND		0.029	0.0044
72-43-5	Methoxychlor	ND		0.15	0.0073
53494-70-5	Endrin ketone	ND		0.029	0.0029
8001-35-2	Toxaphene	ND		2.9	0.67
5103-71-9	cis-Chlordane	ND		0.039	0.012
5103-74-2	trans-Chlordane	ND		0.029	0.0044

CAS NO.	SURROGATE	%REC	Q	LIMITS
877-09-8	Tetrachloro-m-xylene	76		33-120
2051-24-3	DCB Decachlorobiphenyl	97		45-127

*MW 82949*

FORM I  
PESTICIDES ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87927-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070404

Lab Sample ID: 580-87927-4

Matrix: Water

Lab File ID: 45G080119b026.D

Analysis Method: 8081B

Date Collected: 07/23/2019 14:00

Extraction Method: 3510C

Date Extracted: 07/29/2019 11:46

Sample wt/vol: 1027.1(mL)

Date Analyzed: 08/01/2019 20:13

Con. Extract Vol.: 10.0(mL)

Dilution Factor: 1

Injection Volume: 1(uL)

GC Column: ZB-CLPest-1 ID: 0.25(mm)

% Moisture: \_\_\_\_\_

GPC Cleanup: (Y/N) N

Analysis Batch No.: 307263

Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
309-00-2	Aldrin	ND		0.023	0.0068
319-84-6	alpha-BHC	ND		0.018	0.0039
319-85-7	beta-BHC	ND		0.020	0.0049
319-86-8	delta-BHC	ND		0.015	0.0049
58-89-9	gamma-BHC (Lindane)	ND		0.019	0.0049
72-54-8	4,4'-DDD	ND		0.015	0.0058
72-55-9	4,4'-DDE	ND		0.0097	0.0029
50-29-3	4,4'-DDT	ND		0.019	0.0049
60-57-1	Dieldrin	ND		0.018	0.0049
959-98-8	Endosulfan I	0.014	JQ	0.019	0.0029
33213-65-9	Endosulfan II	ND		0.023	0.0049
1031-07-8	Endosulfan sulfate	ND		0.019	0.0029
72-20-8	Endrin	ND		0.012	0.0029
7421-93-4	Endrin aldehyde	ND		0.058	0.033
76-44-8	Heptachlor	ND		0.015	0.0039
1024-57-3	Heptachlor epoxide	ND		0.019	0.0029
72-43-5	Methoxychlor	ND		0.097	0.0049
53494-70-5	Endrin ketone	ND		0.019	0.0019
8001-35-2	Toxaphene	ND		1.9	0.45
5103-71-9	cis-Chlordane	ND		0.026	0.0078
5103-74-2	trans-Chlordane	ND		0.019	0.0029

CAS NO.	SURROGATE	%REC	Q	LIMITS
877-09-8	Tetrachloro-m-xylene	48		33-120
2051-24-3	DCB Decachlorobiphenyl	74		45-127

*Handwritten signature: JW 8/24/19*



FORM I  
PESTICIDES ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87927-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070405 Lab Sample ID: 580-87927-5  
 Matrix: Water Lab File ID: 45G080119b027.D  
 Analysis Method: 8081B Date Collected: 07/23/2019 16:42  
 Extraction Method: 3510C Date Extracted: 07/29/2019 11:46  
 Sample wt/vol: 1019(mL) Date Analyzed: 08/01/2019 20:32  
 Con. Extract Vol.: 10.0(mL) Dilution Factor: 1  
 Injection Volume: 1(uL) GC Column: ZB-CLPest-1 ID: 0.25 (mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 307263 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
309-00-2	Aldrin	ND		0.024	0.0069
319-84-6	alpha-BHC	ND		0.018	0.0039
319-85-7	beta-BHC	ND		0.021	0.0049
319-86-8	delta-BHC	ND		0.015	0.0049
58-89-9	gamma-BHC (Lindane)	ND		0.020	0.0049
72-54-8	4,4'-DDD	ND		0.015	0.0059
72-55-9	4,4'-DDE	ND		0.0098	0.0029
50-29-3	4,4'-DDT	ND		0.020	0.0049
60-57-1	Dieldrin	ND		0.018	0.0049
959-98-8	Endosulfan I	0.0084	JQ	0.020	0.0029
33213-65-9	Endosulfan II	ND		0.024	0.0049
1031-07-8	Endosulfan sulfate	ND		0.020	0.0029
72-20-8	Endrin	ND		0.012	0.0029
7421-93-4	Endrin aldehyde	ND		0.059	0.033
76-44-8	Heptachlor	ND		0.015	0.0039
1024-57-3	Heptachlor epoxide	ND		0.020	0.0029
72-43-5	Methoxychlor	ND		0.098	0.0049
53494-70-5	Endrin ketone	ND		0.020	0.0020
8001-35-2	Toxaphene	ND		2.0	0.45
5103-71-9	cis-Chlordane	ND		0.026	0.0079
5103-74-2	trans-Chlordane	ND		0.020	0.0029

CAS NO.	SURROGATE	%REC	Q	LIMITS
877-09-8	Tetrachloro-m-xylene	53		33-120
2051-24-3	DCB Decachlorobiphenyl	61		45-127

*mu 879-19*



FORM I  
PESTICIDES ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87927-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070406 Lab Sample ID: 580-87927-6  
 Matrix: Water Lab File ID: 45G080119b028.D  
 Analysis Method: 8081B Date Collected: 07/23/2019 18:41  
 Extraction Method: 3510C Date Extracted: 07/29/2019 11:46  
 Sample wt/vol: 1048.8(mL) Date Analyzed: 08/01/2019 20:51  
 Con. Extract Vol.: 10.0(mL) Dilution Factor: 1  
 Injection Volume: 1(uL) GC Column: ZB-CLPest-1 ID: 0.25(mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 307263 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
309-00-2	Aldrin	ND		0.023	0.0067
319-84-6	alpha-BHC	ND		0.017	0.0038
319-85-7	beta-BHC	ND		0.020	0.0048
319-86-8	delta-BHC	ND		0.014	0.0048
58-89-9	gamma-BHC (Lindane)	ND		0.019	0.0048
72-54-8	4,4'-DDD	ND		0.014	0.0057
72-55-9	4,4'-DDE	ND		0.0095	0.0029
50-29-3	4,4'-DDT	ND		0.019	0.0048
60-57-1	Dieldrin	ND		0.017	0.0048
959-98-8	Endosulfan I	ND		0.019	0.0029
33213-65-9	Endosulfan II	ND		0.023	0.0048
1031-07-8	Endosulfan sulfate	ND		0.019	0.0029
72-20-8	Endrin	ND		0.011	0.0029
7421-93-4	Endrin aldehyde	ND		0.057	0.032
76-44-8	Heptachlor	ND		0.014	0.0038
1024-57-3	Heptachlor epoxide	ND		0.019	0.0029
72-43-5	Methoxychlor	ND		0.095	0.0048
53494-70-5	Endrin ketone	ND		0.019	0.0019
8001-35-2	Toxaphene	ND		1.9	0.44
5103-71-9	cis-Chlordane	ND		0.026	0.0076
5103-74-2	trans-Chlordane	ND		0.019	0.0029

CAS NO.	SURROGATE	%REC	Q	LIMITS
877-09-8	Tetrachloro-m-xylene	48		33-120
2051-24-3	DCB Decachlorobiphenyl	73		45-127

*mw 829-19*

FORM I  
PESTICIDES ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87927-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070408 Lab Sample ID: 580-87927-7  
 Matrix: Water Lab File ID: 45G080119b029.D  
 Analysis Method: 8081B Date Collected: 07/24/2019 12:10  
 Extraction Method: 3510C Date Extracted: 07/29/2019 11:46  
 Sample wt/vol: 967.7(mL) Date Analyzed: 08/01/2019 21:09  
 Con. Extract Vol.: 10.0(mL) Dilution Factor: 1  
 Injection Volume: 1(uL) GC Column: ZB-CLPest-1 ID: 0.25 (mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 307263 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
309-00-2	Aldrin	ND		0.025	0.0072
319-84-6	alpha-BHC	ND		0.019	0.0041
319-85-7	beta-BHC	ND		0.022	0.0052
319-86-8	delta-BHC	ND		0.016	0.0052
58-89-9	gamma-BHC (Lindane)	ND		0.021	0.0052
72-54-8	4,4'-DDD	ND		0.016	0.0062
72-55-9	4,4'-DDE	ND		0.010	0.0031
50-29-3	4,4'-DDT	ND		0.021	0.0052
60-57-1	Dieldrin	ND		0.019	0.0052
959-98-8	Endosulfan I	ND		0.021	0.0031
33213-65-9	Endosulfan II	ND		0.025	0.0052
1031-07-8	Endosulfan sulfate	ND		0.021	0.0031
72-20-8	Endrin	ND		0.012	0.0031
7421-93-4	Endrin aldehyde	ND		0.062	0.035
76-44-8	Heptachlor	ND		0.016	0.0041
1024-57-3	Heptachlor epoxide	ND		0.021	0.0031
72-43-5	Methoxychlor	ND		0.10	0.0052
53494-70-5	Endrin ketone	ND		0.021	0.0021
8001-35-2	Toxaphene	ND		2.1	0.48
5103-71-9	cis-Chlordane	ND		0.028	0.0083
5103-74-2	trans-Chlordane	ND		0.021	0.0031

CAS NO.	SURROGATE	%REC	Q	LIMITS
877-09-8	Tetrachloro-m-xylene	38		33-120
2051-24-3	DCB Decachlorobiphenyl	93		45-127

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FORM I  
PESTICIDES ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87927-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070403 Lab Sample ID: 580-87927-8  
 Matrix: Water Lab File ID: 45G080119b030.D  
 Analysis Method: 8081B Date Collected: 07/23/2019 12:22  
 Extraction Method: 3510C Date Extracted: 07/29/2019 11:46  
 Sample wt/vol: 966.7(mL) Date Analyzed: 08/01/2019 21:28  
 Con. Extract Vol.: 10.0(mL) Dilution Factor: 1  
 Injection Volume: 1(uL) GC Column: ZB-CLPest-1 ID: 0.25(mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 307263 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
309-00-2	Aldrin	ND		0.025	0.0072
319-84-6	alpha-BHC	ND		0.019	0.0041
319-85-7	beta-BHC	ND		0.022	0.0052
319-86-8	delta-BHC	ND		0.016	0.0052
58-89-9	gamma-BHC (Lindane)	ND		0.021	0.0052
72-54-8	4,4'-DDD	ND		0.016	0.0062
72-55-9	4,4'-DDE	ND		0.010	0.0031
50-29-3	4,4'-DDT	ND		0.021	0.0052
60-57-1	Dieldrin	ND		0.019	0.0052
959-98-8	Endosulfan I	ND		0.021	0.0031
33213-65-9	Endosulfan II	ND		0.025	0.0052
1031-07-8	Endosulfan sulfate	ND		0.021	0.0031
72-20-8	Endrin	ND		0.012	0.0031
7421-93-4	Endrin aldehyde	ND		0.062	0.035
76-44-8	Heptachlor	ND		0.016	0.0041
1024-57-3	Heptachlor epoxide	ND		0.021	0.0031
72-43-5	Methoxychlor	ND		0.10	0.0052
53494-70-5	Endrin ketone	ND		0.021	0.0021
8001-35-2	Toxaphene	ND		2.1	0.48
5103-71-9	cis-Chlordane	ND		0.028	0.0083
5103-74-2	trans-Chlordane	ND		0.021	0.0031

CAS NO.	SURROGATE	%REC	Q	LIMITS
877-09-8	Tetrachloro-m-xylene	37		33-120
2051-24-3	DCB Decachlorobiphenyl	81		45-127

*mw 82919*

FORM I  
PCBS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87927-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070401 Lab Sample ID: 580-87927-1  
 Matrix: Water Lab File ID: 35G080219a014.d  
 Analysis Method: 8082A Date Collected: 07/23/2019 10:27  
 Extraction Method: 3510C Date Extracted: 07/30/2019 10:00  
 Sample wt/vol: 1054.6(mL) Date Analyzed: 08/02/2019 12:34  
 Con. Extract Vol.: 10.0(mL) Dilution Factor: 1  
 Injection Volume: 1(uL) GC Column: ZB-CLPest-1 ID: 0.25(mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 307329 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
12674-11-2	PCB-1016	ND		0.43	0.058
11104-28-2	PCB-1221	ND		0.43	0.071
11141-16-5	PCB-1232	ND		0.43	0.060
53469-21-9	PCB-1242	ND		0.43	0.056
12672-29-6	PCB-1248	ND		0.43	0.049
11097-69-1	PCB-1254	ND		0.43	0.071
11096-82-5	PCB-1260	ND		0.43	0.058

CAS NO.	SURROGATE	%REC	Q	LIMITS
2051-24-3	DCB Decachlorobiphenyl	78		30-140
877-09-8	Tetrachloro-m-xylene	67		29-120

*mw 87949*

FORM I  
PCBS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87927-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070402 Lab Sample ID: 580-87927-2  
 Matrix: Water Lab File ID: 35G080219a017.d  
 Analysis Method: 8082A Date Collected: 07/23/2019 10:57  
 Extraction Method: 3510C Date Extracted: 07/30/2019 10:00  
 Sample wt/vol: 964 (mL) Date Analyzed: 08/02/2019 13:24  
 Con. Extract Vol.: 10.0 (mL) Dilution Factor: 1  
 Injection Volume: 1 (uL) GC Column: ZB-CLPest-1 ID: 0.25 (mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 307329 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
12674-11-2	PCB-1016	ND		0.47	0.063
11104-28-2	PCB-1221	ND		0.47	0.078
11141-16-5	PCB-1232	ND		0.47	0.065
53469-21-9	PCB-1242	ND		0.47	0.061
12672-29-6	PCB-1248	ND		0.47	0.054
11097-69-1	PCB-1254	ND		0.47	0.078
11096-82-5	PCB-1260	ND		0.47	0.063

CAS NO.	SURROGATE	%REC	Q	LIMITS
2051-24-3	DCB Decachlorobiphenyl	69		30-140
877-09-8	Tetrachloro-m-xylene	53		29-120

*mw 829/19*

FORM I  
PCBS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87927-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070407 Lab Sample ID: 580-87927-3  
 Matrix: Water Lab File ID: 25H080119a048.d  
 Analysis Method: 8082A Date Collected: 07/24/2019 10:10  
 Extraction Method: 3510C Date Extracted: 07/30/2019 15:18  
 Sample wt/vol: 172.2(mL) Date Analyzed: 08/01/2019 22:15  
 Con. Extract Vol.: 2.5(mL) Dilution Factor: 1  
 Injection Volume: 1(uL) GC Column: ZB-CLPest-1 ID: 0.25 (mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 307274 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
12674-11-2	PCB-1016	ND		0.65	0.089
11104-28-2	PCB-1221	ND		0.65	0.11
11141-16-5	PCB-1232	ND		0.65	0.091
53469-21-9	PCB-1242	ND		0.65	0.086
12672-29-6	PCB-1248	ND		0.65	0.075
11097-69-1	PCB-1254	ND		0.65	0.11
11096-82-5	PCB-1260	ND		0.65	0.089

CAS NO.	SURROGATE	%REC	Q	LIMITS
2051-24-3	DCB Decachlorobiphenyl	68		30-140
877-09-8	Tetrachloro-m-xylene	70		29-120

*MW 829-19*

FORM I  
PCBS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87927-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070404 Lab Sample ID: 580-87927-4  
 Matrix: Water Lab File ID: 35G080219a018.d  
 Analysis Method: 8082A Date Collected: 07/23/2019 14:00  
 Extraction Method: 3510C Date Extracted: 07/30/2019 10:00  
 Sample wt/vol: 1033.1(mL) Date Analyzed: 08/02/2019 13:41  
 Con. Extract Vol.: 10.0(mL) Dilution Factor: 1  
 Injection Volume: 1(uL) GC Column: ZB-CLPest-1 ID: 0.25(mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 307329 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
12674-11-2	PCB-1016	ND		0.44	0.059
11104-28-2	PCB-1221	ND		0.44	0.073
11141-16-5	PCB-1232	ND		0.44	0.061
53469-21-9	PCB-1242	ND		0.44	0.057
12672-29-6	PCB-1248	ND		0.44	0.050
11097-69-1	PCB-1254	ND		0.44	0.073
11096-82-5	PCB-1260	ND		0.44	0.059

CAS NO.	SURROGATE	%REC	Q	LIMITS
2051-24-3	DCB Decachlorobiphenyl	84		30-140
877-09-8	Tetrachloro-m-xylene	73		29-120

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FORM I  
PCBS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87927-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070405 Lab Sample ID: 580-87927-5  
 Matrix: Water Lab File ID: 35G080219a019.d  
 Analysis Method: 8082A Date Collected: 07/23/2019 16:42  
 Extraction Method: 3510C Date Extracted: 07/30/2019 10:00  
 Sample wt/vol: 1027(mL) Date Analyzed: 08/02/2019 13:58  
 Con. Extract Vol.: 10.0(mL) Dilution Factor: 1  
 Injection Volume: 1(uL) GC Column: ZB-CLPest-1 ID: 0.25(mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 307329 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
12674-11-2	PCB-1016	ND		0.44	0.059
11104-28-2	PCB-1221	ND		0.44	0.073
11141-16-5	PCB-1232	ND		0.44	0.061
53469-21-9	PCB-1242	ND		0.44	0.057
12672-29-6	PCB-1248	ND		0.44	0.051
11097-69-1	PCB-1254	ND		0.44	0.073
11096-82-5	PCB-1260	ND		0.44	0.059

CAS NO.	SURROGATE	%REC	Q	LIMITS
2051-24-3	DCB Decachlorobiphenyl	67		30-140
877-09-8	Tetrachloro-m-xylene	72		29-120

*Jan 829/19*



FORM I  
PCBS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87927-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070406 Lab Sample ID: 580-87927-6  
 Matrix: Water Lab File ID: 35G080219a020.d  
 Analysis Method: 8082A Date Collected: 07/23/2019 18:41  
 Extraction Method: 3510C Date Extracted: 07/30/2019 10:00  
 Sample wt/vol: 1054 (mL) Date Analyzed: 08/02/2019 14:15  
 Con. Extract Vol.: 10.0 (mL) Dilution Factor: 1  
 Injection Volume: 1 (uL) GC Column: ZB-CLPest-1 ID: 0.25 (mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 307329 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
12674-11-2	PCB-1016	ND		0.43	0.058
11104-28-2	PCB-1221	ND		0.43	0.071
11141-16-5	PCB-1232	ND		0.43	0.060
53469-21-9	PCB-1242	ND		0.43	0.056
12672-29-6	PCB-1248	ND		0.43	0.049
11097-69-1	PCB-1254	ND		0.43	0.071
11096-82-5	PCB-1260	ND		0.43	0.058

CAS NO.	SURROGATE	%REC	Q	LIMITS
2051-24-3	DCB Decachlorobiphenyl	77		30-140
877-09-8	Tetrachloro-m-xylene	63		29-120

*MW 82919*

FORM I  
PCBS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87927-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070408 Lab Sample ID: 580-87927-7  
 Matrix: Water Lab File ID: 35G080219a021.d  
 Analysis Method: 8082A Date Collected: 07/24/2019 12:10  
 Extraction Method: 3510C Date Extracted: 07/30/2019 10:00  
 Sample wt/vol: 959.7 (mL) Date Analyzed: 08/02/2019 14:31  
 Con. Extract Vol.: 10.0 (mL) Dilution Factor: 1  
 Injection Volume: 1 (uL) GC Column: ZB-CLPest-1 ID: 0.25 (mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 307329 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
12674-11-2	PCB-1016	ND		0.47	0.064
11104-28-2	PCB-1221	ND		0.47	0.078
11141-16-5	PCB-1232	ND		0.47	0.066
53469-21-9	PCB-1242	ND		0.47	0.061
12672-29-6	PCB-1248	ND		0.47	0.054
11097-69-1	PCB-1254	ND		0.47	0.078
11096-82-5	PCB-1260	ND		0.47	0.064

CAS NO.	SURROGATE	%REC	Q	LIMITS
2051-24-3	DCB Decachlorobiphenyl	92		30-140
877-09-8	Tetrachloro-m-xylene	64		29-120

*Jan 829-19*

FORM I  
PCBS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87927-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070403 Lab Sample ID: 580-87927-8  
 Matrix: Water Lab File ID: 35G080219a022.d  
 Analysis Method: 8082A Date Collected: 07/23/2019 12:22  
 Extraction Method: 3510C Date Extracted: 07/30/2019 10:00  
 Sample wt/vol: 967.5(mL) Date Analyzed: 08/02/2019 14:48  
 Con. Extract Vol.: 10.0(mL) Dilution Factor: 1  
 Injection Volume: 1(uL) GC Column: 2B-CLPest-1 ID: 0.25(mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 307329 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
12674-11-2	PCB-1016	ND		0.47	0.063
11104-28-2	PCB-1221	ND		0.47	0.078
11141-16-5	PCB-1232	ND		0.47	0.065
53469-21-9	PCB-1242	ND		0.47	0.061
12672-29-6	PCB-1248	ND		0.47	0.054
11097-69-1	PCB-1254	ND		0.47	0.078
11096-82-5	PCB-1260	ND		0.47	0.063

CAS NO.	SURROGATE	%REC	Q	LIMITS
2051-24-3	DCB Decachlorobiphenyl	63		30-140
877-09-8	Tetrachloro-m-xylene	42		29-120

*mw 829-19*



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### MEMORANDUM

DATE: August 28, 2019

TO: Seth Wing, START-IV Project Manager, E & E, Seattle, WA

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington

SUBJ: **Organic Data Quality Assurance Review, May Creek Removal Action Site, Renton, Washington**

REF: TO: TO-68HE0718F0470      PAN: 1004530.0470.001.01

The data quality assurance review of 8 water samples collected from the May Creek Removal Action site in Renton, Washington, has been completed. Semivolatile Organic Compound (SVOC) analysis (EPA Method 8270) was performed by Test America, Inc., Tacoma, Washington. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Manual Process (S2B/4VM).

The samples were numbered:	19070401	19070402	19070403	19070404
	19070405	19070406	19070407	19070408

#### **Data Qualifications:**

##### **1. Sample Holding Times: Acceptable.**

The samples were maintained and received within the QC limits of 0°C to 6°C. The samples were collected on July 23 and 24, 2019, were extracted on July 28, 2019, and were analyzed by August 1, 2019, therefore meeting holding time criteria of less than 14 days between collection and extraction and less than 40 days between extraction and analysis.

##### **2. Tuning: Acceptable.**

Tuning was performed at the beginning of each 12-hour analysis sequence. All results were within QC limits.

##### **3. Initial Calibration: Satisfactory.**

All average Relative Response Factors (RRFs) were within the QC limits except n-nitroso-di-n-propylamine; associated sample quantitation limits were rejected (R). All Relative Standard Deviations (RSDs) were within the QC limits.

##### **4. Continuing Calibration: Satisfactory.**

All RRFs were within the QC limits except n-nitroso-di-n-propylamine; no additional actions were taken. All % differences were within the QC limits except high results for 3,3'-dichlorobenzidine, bis(2-ethylhexyl) phthalate and carbazole; no actions were taken as these analytes were not detected in the associated samples.

##### **5. Blanks: Acceptable.**

A method blank was analyzed for each 20 sample batch per matrix. There were no detections in any method blank.

**6. System Monitoring Compounds (SMCs): Satisfactory.**

All SMC recoveries were within QC limits except 2-fluorobiphenyl and terphenyl-d14 failed the recovery criteria low in sample 19070407; evidence of matrix interference is present; therefore, no qualifiers were applied.

**7. Matrix Spike (MS)/MS Duplicate (MSD) Analysis: Satisfactory.**

MS and MSD analyses were performed per SDG or per matrix per concentration level, whichever was more frequent. All recoveries were within QC limits except 2,4-dimethylphenol, 3,3'-dichlorobenzidine, bis(2-ethylhexyl)phthalate and hexachlorocyclopentadiene with low recoveries for the MS of sample 19070401 and carbazole failed the recovery criteria high. For the MSD of sample 19070401, 2,4-dimethylphenol, 3,3'-dichlorobenzidine, bis(2-ethylhexyl) phthalate and hexachlorocyclopentadiene failed the recovery criteria low and carbazole failed the recovery criteria high. Sample matrix interference is suspected; therefore, no qualifiers were applied.

**8. Blank Spike (BS)/BS Duplicate (BSD) Analysis: Satisfactory.**

BS and BSD analyses were performed per SDG or per matrix per concentration level, whichever was more frequent. All recoveries were within QC limits except hexachlorocyclopentadiene failed the recovery criteria low (associated sample quantitation limits were qualified as estimated quantities with a low bias [UJL]) and bis(2-ethylhexyl) phthalate and carbazole failed the recovery criteria high (no actions were taken as these analytes were not detected in the associated samples).

**9. Duplicate Analysis: Satisfactory.**

Spike duplicate analyses were performed per SDG or per matrix per concentration level, whichever was more frequent. All spike duplicate results were within QC limits except bis(2-ethylhexyl)phthalate in the BS/BSD and several outliers in the MS and MSD. No qualifiers were applied based on the duplicate outliers alone.

**10. Internal Standards: Acceptable.**

All internal standards (IS) were within  $\pm 30$  seconds of the continuing calibration IS retention times. All area counts were within 50 % to 200 % of the continuing calibration area counts.

**11. Overall Assessment of Data for Use**

A total of 536 results were validated in this data memorandum. No sample results were qualified as estimated quantities (J) based on duplicate precision outliers, spike accuracy outliers, holding time outliers, incorrect sample containers, or sample temperature outliers. No sample results were rejected (R).

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the analytical method(s), the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, and/or the Office of Emergency and Remedial Response Publication "National Functional Guidelines for Superfund Organic Methods Data Review, January 2017". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

### Data Qualifiers and Definitions

- H - The sample result is biased high.
- J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
- K - The bias of the sample is not known.
- L - The sample result is biased low.
- N - The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification".
- NJ - The analyte has been "tentatively identified" or "presumptively" as present and the associated numerical value is the estimated concentration in the sample.
- Q - Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.
- R - The data is rejected and unusable. The analyte may or may not be present in the sample.
- U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.



FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87927-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070401 Lab Sample ID: 580-87927-1  
 Matrix: Water Lab File ID: 40scan080119a009.D  
 Analysis Method: 8270D Date Collected: 07/23/2019 10:27  
 Extract. Method: 3520C Date Extracted: 07/28/2019 12:19  
 Sample wt/vol: 1045.1(mL) Date Analyzed: 08/01/2019 13:14  
 Con. Extract Vol.: 2(mL) Dilution Factor: 1  
 Injection Volume: 1(uL) Level: (low/med) Low  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 307236 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
108-95-2	Phenol	ND		3.8	0.28
111-44-4	Bis(2-chloroethyl)ether	ND		0.57	0.096
95-57-8	2-Chlorophenol	ND		0.57	0.21
541-73-1	1,3-Dichlorobenzene	ND		0.38	0.096
106-46-7	1,4-Dichlorobenzene	ND		0.38	0.057
100-51-6	Benzyl alcohol	ND		2.9	0.66
95-50-1	1,2-Dichlorobenzene	ND		0.57	0.096
95-48-7	2-Methylphenol	ND		0.57	0.096
15831-10-4	3 & 4 Methylphenol	ND		0.77	0.17
621-64-7	N-Nitrosodi-n-propylamine	ND		0.57	0.096
67-72-1	Hexachloroethane	ND		0.96	0.096
98-95-3	Nitrobenzene	ND		0.57	0.21
78-59-1	Isophorone	ND	<i>E2</i>	0.38	0.096
88-75-5	2-Nitrophenol	ND		0.96	0.13
105-67-9	2,4-Dimethylphenol	ND	<i>F1</i>	3.8	0.79
65-85-0	Benzoic acid	ND		3.8	0.81
111-91-1	Bis(2-chloroethoxy)methane	ND		0.57	0.096
120-83-2	2,4-Dichlorophenol	ND		3.8	0.16
120-82-1	1,2,4-Trichlorobenzene	ND		0.38	0.038
91-20-3	Naphthalene	ND		0.38	0.096
106-47-8	4-Chloroaniline	ND		9.6	2.0
87-68-3	Hexachlorobutadiene	ND		0.96	0.096
59-50-7	4-Chloro-3-methylphenol	ND		0.57	0.096
91-57-6	2-Methylnaphthalene	ND		0.38	0.057
77-47-4	Hexachlorocyclopentadiene	ND	<i>*F1</i>	2.9	0.077
88-06-2	2,4,6-Trichlorophenol	ND		0.57	0.096
95-95-4	2,4,5-Trichlorophenol	ND		0.38	0.096
91-58-7	2-Chloronaphthalene	ND		0.96	0.12
88-74-4	2-Nitroaniline	ND		0.57	0.096
131-11-3	Dimethyl phthalate	ND		0.57	0.096
208-96-8	Acenaphthylene	ND		0.96	0.096
606-20-2	2,6-Dinitrotoluene	ND		0.57	0.096
99-09-2	3-Nitroaniline	ND		2.9	0.15
83-32-9	Acenaphthene	ND		0.38	0.077

*MW 8/29/19*

FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87927-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070401

Lab Sample ID: 580-87927-1

Matrix: Water

Lab File ID: 40scan080119a009.D

Analysis Method: 8270D

Date Collected: 07/23/2019 10:27

Extract. Method: 3520C

Date Extracted: 07/28/2019 12:19

Sample wt/vol: 1045.1(mL)

Date Analyzed: 08/01/2019 13:14

Con. Extract Vol.: 2(mL)

Dilution Factor: 1

Injection Volume: 1(uL)

Level: (low/med) Low

% Moisture: \_\_\_\_\_

GPC Cleanup: (Y/N) N

Analysis Batch No.: 307236

Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
51-28-5	2,4-Dinitrophenol	ND		19	5.5
100-02-7	4-Nitrophenol	ND		14	0.61
132-64-9	Dibenzofuran	ND		0.38	0.057
121-14-2	2,4-Dinitrotoluene	ND		0.96	0.13
84-66-2	Diethyl phthalate	ND		11	0.69
7005-72-3	4-Chlorophenyl phenyl ether	ND		0.57	0.096
86-73-7	Fluorene	ND		1.9	0.086
100-01-6	4-Nitroaniline	ND		1.9	0.12
534-52-1	4,6-Dinitro-2-methylphenol	ND		9.6	2.5
86-30-6	N-Nitrosodiphenylamine	ND		2.9	0.13
101-55-3	4-Bromophenyl phenyl ether	ND		0.57	0.096
118-74-1	Hexachlorobenzene	ND		0.57	0.096
87-86-5	Pentachlorophenol	ND		9.6	2.4
85-01-8	Phenanthrene	ND		0.96	0.12
120-12-7	Anthracene	ND		14	0.13
84-74-2	Di-n-butyl phthalate	ND		2.9	0.53
206-44-0	Fluoranthene	ND		2.9	0.14
129-00-0	Pyrene	ND		1.9	0.096
85-68-7	Butyl benzyl phthalate	ND		9.6	0.35
91-94-1	3,3'-Dichlorobenzidine	ND	Flu	14	3.1
56-55-3	Benzo[a]anthracene	ND		0.96	0.086
218-01-9	Chrysene	ND		0.57	0.16
117-81-7	Bis(2-ethylhexyl) phthalate	ND	Flu	14	6.0
117-84-0	Di-n-octyl phthalate	ND		0.96	0.17
50-32-8	Benzo[a]pyrene	ND		0.96	0.15
193-39-5	Indeno[1,2,3-cd]pyrene	ND		0.96	0.048
53-70-3	Dibenz(a,h)anthracene	ND		0.57	0.096
191-24-2	Benzo[g,h,i]perylene	ND		0.96	0.096
86-74-8	Carbazole	ND	* Flu	0.57	0.096
90-12-0	1-Methylnaphthalene	ND		0.96	0.067
205-99-2	Benzo[b]fluoranthene	ND		0.96	0.12
207-08-9	Benzo[k]fluoranthene	ND		0.96	0.096
108-60-1	bis(chloroisopropyl) ether	ND		0.57	0.20



FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87927-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070401 Lab Sample ID: 580-87927-1  
 Matrix: Water Lab File ID: 40scan080119a009.D  
 Analysis Method: 8270D Date Collected: 07/23/2019 10:27  
 Extract. Method: 3520C Date Extracted: 07/28/2019 12:19  
 Sample wt/vol: 1045.1 (mL) Date Analyzed: 08/01/2019 13:14  
 Con. Extract Vol.: 2 (mL) Dilution Factor: 1  
 Injection Volume: 1 (uL) Level: (low/med) Low  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 307236 Units: ug/L

CAS NO.	SURROGATE	%REC	Q	LIMITS
367-12-4	2-Fluorophenol (Surr)	72		36-120
4165-62-2	Phenol-d5 (Surr)	77		38-120
4165-60-0	Nitrobenzene-d5 (Surr)	84		46-129
321-60-8	2-Fluorobiphenyl	87		50-120
118-79-6	2,4,6-Tribromophenol (Surr)	79		48-125
1718-51-0	Terphenyl-d14 (Surr)	102		61-126

*mw 8/28/19*

FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87927-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070402

Lab Sample ID: 580-87927-2

Matrix: Water

Lab File ID: 40scan080119a012.D

Analysis Method: 8270D

Date Collected: 07/23/2019 10:57

Extract. Method: 3520C

Date Extracted: 07/28/2019 12:19

Sample wt/vol: 970.5 (mL)

Date Analyzed: 08/01/2019 14:24

Con. Extract Vol.: 2 (mL)

Dilution Factor: 1

Injection Volume: 1 (uL)

Level: (low/med) Low

% Moisture: \_\_\_\_\_

GPC Cleanup: (Y/N) N

Analysis Batch No.: 307236

Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
108-95-2	Phenol	ND		4.1	0.30
111-44-4	Bis(2-chloroethyl)ether	ND		0.62	0.10
95-57-8	2-Chlorophenol	ND		0.62	0.23
541-73-1	1,3-Dichlorobenzene	ND		0.41	0.10
106-46-7	1,4-Dichlorobenzene	ND		0.41	0.062
100-51-6	Benzyl alcohol	ND		3.1	0.71
95-50-1	1,2-Dichlorobenzene	ND		0.62	0.10
95-48-7	2-Methylphenol	ND		0.62	0.10
15831-10-4	3 & 4 Methylphenol	ND		0.82	0.19
621-64-7	N-Nitrosodi-n-propylamine	ND		0.62	0.10
67-72-1	Hexachloroethane	ND		1.0	0.10
98-95-3	Nitrobenzene	ND		0.62	0.23
78-59-1	Isophorone	ND		0.41	0.10
88-75-5	2-Nitrophenol	ND		1.0	0.14
105-67-9	2,4-Dimethylphenol	ND		4.1	0.86
65-85-0	Benzoic acid	1.0	JQ	4.1	0.88
111-91-1	Bis(2-chloroethoxy)methane	ND		0.62	0.10
120-83-2	2,4-Dichlorophenol	ND		4.1	0.18
120-82-1	1,2,4-Trichlorobenzene	ND		0.41	0.041
91-20-3	Naphthalene	ND		0.41	0.10
106-47-8	4-Chloroaniline	ND		10	2.2
87-68-3	Hexachlorobutadiene	ND		1.0	0.10
59-50-7	4-Chloro-3-methylphenol	ND		0.62	0.10
91-57-6	2-Methylnaphthalene	ND		0.41	0.062
77-47-4	Hexachlorocyclopentadiene	ND	fw	3.1	0.082
88-06-2	2,4,6-Trichlorophenol	ND		0.62	0.10
95-95-4	2,4,5-Trichlorophenol	ND		0.41	0.10
91-58-7	2-Chloronaphthalene	ND		1.0	0.13
88-74-4	2-Nitroaniline	ND		0.62	0.10
131-11-3	Dimethyl phthalate	ND		0.62	0.10
208-96-8	Acenaphthylene	ND		1.0	0.10
606-20-2	2,6-Dinitrotoluene	ND		0.62	0.10
99-09-2	3-Nitroaniline	ND		3.1	0.16
83-32-9	Acenaphthene	ND		0.41	0.082



FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87927-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070402

Lab Sample ID: 580-87927-2

Matrix: Water

Lab File ID: 40scan080119a012.D

Analysis Method: 8270D

Date Collected: 07/23/2019 10:57

Extract. Method: 3520C

Date Extracted: 07/28/2019 12:19

Sample wt/vol: 970.5 (mL)

Date Analyzed: 08/01/2019 14:24

Con. Extract Vol.: 2 (mL)

Dilution Factor: 1

Injection Volume: 1 (uL)

Level: (low/med) Low

% Moisture: \_\_\_\_\_

GPC Cleanup: (Y/N) N

Analysis Batch No.: 307236

Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
51-28-5	2,4-Dinitrophenol	ND		21	6.0
100-02-7	4-Nitrophenol	ND		15	0.66
132-64-9	Dibenzofuran	ND		0.41	0.062
121-14-2	2,4-Dinitrotoluene	ND		1.0	0.14
84-66-2	Diethyl phthalate	ND		12	0.74
7005-72-3	4-Chlorophenyl phenyl ether	ND		0.62	0.10
86-73-7	Fluorene	ND		2.1	0.093
100-01-6	4-Nitroaniline	ND		2.1	0.13
534-52-1	4,6-Dinitro-2-methylphenol	ND		10	2.7
86-30-6	N-Nitrosodiphenylamine	ND		3.1	0.14
101-55-3	4-Bromophenyl phenyl ether	ND		0.62	0.10
118-74-1	Hexachlorobenzene	ND		0.62	0.10
87-86-5	Pentachlorophenol	ND		10	2.5
85-01-8	Phenanthrene	ND		1.0	0.13
120-12-7	Anthracene	ND		15	0.14
84-74-2	Di-n-butyl phthalate	ND		3.1	0.57
206-44-0	Fluoranthene	ND		3.1	0.15
129-00-0	Pyrene	ND		2.1	0.10
85-68-7	Butyl benzyl phthalate	0.42	JQ	10	0.38
91-94-1	3,3'-Dichlorobenzidine	ND		15	3.3
56-55-3	Benzo[a]anthracene	ND		1.0	0.093
218-01-9	Chrysene	ND		0.62	0.18
117-81-7	Bis(2-ethylhexyl) phthalate	ND		15	6.5
117-84-0	Di-n-octyl phthalate	0.25	JQ	1.0	0.19
50-32-8	Benzo[a]pyrene	ND		1.0	0.16
193-39-5	Indeno[1,2,3-cd]pyrene	ND		1.0	0.052
53-70-3	Dibenz(a,h)anthracene	ND		0.62	0.10
191-24-2	Benzo[g,h,i]perylene	ND		1.0	0.10
86-74-8	Carbazole	ND		0.62	0.10
90-12-0	1-Methylnaphthalene	ND		1.0	0.072
205-99-2	Benzo[b]fluoranthene	ND		1.0	0.13
207-08-9	Benzo[k]fluoranthene	ND		1.0	0.10
108-60-1	bis(chloroisopropyl) ether	ND		0.62	0.22

FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87927-1  
SDG No.: \_\_\_\_\_  
Client Sample ID: 19070402 Lab Sample ID: 580-87927-2  
Matrix: Water Lab File ID: 40scan080119a012.D  
Analysis Method: 8270D Date Collected: 07/23/2019 10:57  
Extract. Method: 3520C Date Extracted: 07/28/2019 12:19  
Sample wt/vol: 970.5(mL) Date Analyzed: 08/01/2019 14:24  
Con. Extract Vol.: 2(mL) Dilution Factor: 1  
Injection Volume: 1(uL) Level: (low/med) Low  
% Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
Analysis Batch No.: 307236 Units: ug/L

CAS NO.	SURROGATE	%REC	Q	LIMITS
367-12-4	2-Fluorophenol (Surr)	69		36-120
4165-62-2	Phenol-d5 (Surr)	80		38-120
4165-60-0	Nitrobenzene-d5 (Surr)	85		46-129
321-60-8	2-Fluorobiphenyl	77		50-120
118-79-6	2,4,6-Tribromophenol (Surr)	87		48-125
1718-51-0	Terphenyl-d14 (Surr)	91		61-126

*MW 829-19*

FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87927-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070407

Lab Sample ID: 580-87927-3

Matrix: Water

Lab File ID: 40scan080119a013.D

Analysis Method: 8270D

Date Collected: 07/24/2019 10:10

Extract. Method: 3520C

Date Extracted: 07/28/2019 12:19

Sample wt/vol: 1053.7(mL)

Date Analyzed: 08/01/2019 14:48

Con. Extract Vol.: 2(mL)

Dilution Factor: 1

Injection Volume: 1(uL)

Level: (low/med) Low

% Moisture: \_\_\_\_\_

GPC Cleanup: (Y/N) N

Analysis Batch No.: 307236

Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
108-95-2	Phenol	ND		3.8	0.28
111-44-4	Bis(2-chloroethyl)ether	ND		0.57	0.095
95-57-8	2-Chlorophenol	ND		0.57	0.21
541-73-1	1,3-Dichlorobenzene	ND		0.38	0.095
106-46-7	1,4-Dichlorobenzene	ND		0.38	0.057
100-51-6	Benzyl alcohol	ND		2.8	0.65
95-50-1	1,2-Dichlorobenzene	ND		0.57	0.095
95-48-7	2-Methylphenol	ND		0.57	0.095
15831-10-4	3 & 4 Methylphenol	ND		0.76	0.17
621-64-7	N-Nitrosodi-n-propylamine	ND		0.57	0.095
67-72-1	Hexachloroethane	0.88	J Q	0.95	0.095
98-95-3	Nitrobenzene	ND		0.57	0.21
78-59-1	Isophorone	ND		0.38	0.095
88-75-5	2-Nitrophenol	ND		0.95	0.13
105-67-9	2,4-Dimethylphenol	ND		3.8	0.79
65-85-0	Benzoic acid	ND		3.8	0.81
111-91-1	Bis(2-chloroethoxy)methane	ND		0.57	0.095
120-83-2	2,4-Dichlorophenol	ND		3.8	0.16
120-82-1	1,2,4-Trichlorobenzene	0.042	J Q	0.38	0.038
91-20-3	Naphthalene	ND		0.38	0.095
106-47-8	4-Chloroaniline	ND		9.5	2.0
87-68-3	Hexachlorobutadiene	0.28	J Q	0.95	0.095
59-50-7	4-Chloro-3-methylphenol	ND		0.57	0.095
91-57-6	2-Methylnaphthalene	ND		0.38	0.057
77-47-4	Hexachlorocyclopentadiene	ND		2.8	0.076
88-06-2	2,4,6-Trichlorophenol	ND		0.57	0.095
95-95-4	2,4,5-Trichlorophenol	ND		0.38	0.095
91-58-7	2-Chloronaphthalene	ND		0.95	0.12
88-74-4	2-Nitroaniline	ND		0.57	0.095
131-11-3	Dimethyl phthalate	ND		0.57	0.095
208-96-8	Acenaphthylene	ND		0.95	0.095
606-20-2	2,6-Dinitrotoluene	0.16	J Q	0.57	0.095
99-09-2	3-Nitroaniline	ND		2.8	0.15
83-32-9	Acenaphthene	ND		0.38	0.076



FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87927-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070407

Lab Sample ID: 580-87927-3

Matrix: Water

Lab File ID: 40scan080119a013.D

Analysis Method: 8270D

Date Collected: 07/24/2019 10:10

Extract. Method: 3520C

Date Extracted: 07/28/2019 12:19

Sample wt/vol: 1053.7(mL)

Date Analyzed: 08/01/2019 14:48

Con. Extract Vol.: 2(mL)

Dilution Factor: 1

Injection Volume: 1(uL)

Level: (low/med) Low

% Moisture: \_\_\_\_\_

GPC Cleanup: (Y/N) N

Analysis Batch No.: 307236

Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
51-28-5	2,4-Dinitrophenol	ND		19	5.5
100-02-7	4-Nitrophenol	ND		14	0.61
132-64-9	Dibenzofuran	ND		0.38	0.057
121-14-2	2,4-Dinitrotoluene	ND		0.95	0.13
84-66-2	Diethyl phthalate	ND		11	0.68
7005-72-3	4-Chlorophenyl phenyl ether	ND		0.57	0.095
86-73-7	Fluorene	ND		1.9	0.085
100-01-6	4-Nitroaniline	ND		1.9	0.12
534-52-1	4,6-Dinitro-2-methylphenol	ND		9.5	2.5
86-30-6	N-Nitrosodiphenylamine	ND		2.8	0.13
101-55-3	4-Bromophenyl phenyl ether	ND		0.57	0.095
118-74-1	Hexachlorobenzene	5.2		0.57	0.095
87-86-5	Pentachlorophenol	ND		9.5	2.3
85-01-8	Phenanthrene	ND		0.95	0.12
120-12-7	Anthracene	ND		14	0.13
84-74-2	Di-n-butyl phthalate	ND		2.8	0.52
206-44-0	Fluoranthene	ND		2.8	0.14
129-00-0	Pyrene	ND		1.9	0.095
85-68-7	Butyl benzyl phthalate	ND		9.5	0.35
91-94-1	3,3'-Dichlorobenzidine	ND		14	3.0
56-55-3	Benzo[a]anthracene	ND		0.95	0.085
218-01-9	Chrysene	ND		0.57	0.16
117-81-7	Bis(2-ethylhexyl) phthalate	ND		14	6.0
117-84-0	Di-n-octyl phthalate	0.89	JR	0.95	0.17
50-32-8	Benzo[a]pyrene	ND		0.95	0.15
193-39-5	Indeno[1,2,3-cd]pyrene	ND		0.95	0.047
53-70-3	Dibenz(a,h)anthracene	ND		0.57	0.095
191-24-2	Benzo[g,h,i]perylene	ND		0.95	0.095
86-74-8	Carbazole	ND		0.57	0.095
90-12-0	1-Methylnaphthalene	ND		0.95	0.066
205-99-2	Benzo[b]fluoranthene	ND		0.95	0.12
207-08-9	Benzo[k]fluoranthene	ND		0.95	0.095
108-60-1	bis(chloroisopropyl) ether	ND		0.57	0.20

*Mw 829-19*

FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87927-1  
SDG No.: \_\_\_\_\_  
Client Sample ID: 19070407 Lab Sample ID: 580-87927-3  
Matrix: Water Lab File ID: 40scan080119a013.D  
Analysis Method: 8270D Date Collected: 07/24/2019 10:10  
Extract. Method: 3520C Date Extracted: 07/28/2019 12:19  
Sample wt/vol: 1053.7(mL) Date Analyzed: 08/01/2019 14:48  
Con. Extract Vol.: 2(mL) Dilution Factor: 1  
Injection Volume: 1(uL) Level: (low/med) Low  
% Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
Analysis Batch No.: 307236 Units: ug/L

CAS NO.	SURROGATE	%REC	Q	LIMITS
367-12-4	2-Fluorophenol (Surr)	40		36-120
4165-62-2	Phenol-d5 (Surr)	45		38-120
4165-60-0	Nitrobenzene-d5 (Surr)	47		46-129
321-60-8	2-Fluorobiphenyl	40	X	50-120
118-79-6	2,4,6-Tribromophenol (Surr)	52		48-125
1718-51-0	Terphenyl-d14 (Surr)	55	X	61-126

*Handwritten signature and date: JAW 8/26/19*

FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87927-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070404

Lab Sample ID: 580-87927-4

Matrix: Water

Lab File ID: 40scan080119a014.D

Analysis Method: 8270D

Date Collected: 07/23/2019 14:00

Extract. Method: 3520C

Date Extracted: 07/28/2019 12:19

Sample wt/vol: 1048.6(mL)

Date Analyzed: 08/01/2019 15:11

Con. Extract Vol.: 2(mL)

Dilution Factor: 1

Injection Volume: 1(uL)

Level: (low/med) Low

% Moisture: \_\_\_\_\_

GPC Cleanup: (Y/N) N

Analysis Batch No.: 307236

Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
108-95-2	Phenol	ND		3.8	0.28
111-44-4	Bis(2-chloroethyl)ether	ND		0.57	0.095
95-57-8	2-Chlorophenol	ND		0.57	0.21
541-73-1	1,3-Dichlorobenzene	ND		0.38	0.095
106-46-7	1,4-Dichlorobenzene	ND		0.38	0.057
100-51-6	Benzyl alcohol	ND		2.9	0.66
95-50-1	1,2-Dichlorobenzene	ND		0.57	0.095
95-48-7	2-Methylphenol	ND		0.57	0.095
15831-10-4	3 & 4 Methylphenol	ND		0.76	0.17
621-64-7	N-Nitrosodi-n-propylamine	ND		0.57	0.095
67-72-1	Hexachloroethane	ND		0.95	0.095
98-95-3	Nitrobenzene	ND		0.57	0.21
78-59-1	Isophorone	ND		0.38	0.095
88-75-5	2-Nitrophenol	ND		0.95	0.13
105-67-9	2,4-Dimethylphenol	ND		3.8	0.79
65-85-0	Benzoic acid	1.1	JQ	3.8	0.81
111-91-1	Bis(2-chloroethoxy)methane	ND		0.57	0.095
120-83-2	2,4-Dichlorophenol	ND		3.8	0.16
120-82-1	1,2,4-Trichlorobenzene	ND		0.38	0.038
91-20-3	Naphthalene	ND		0.38	0.095
106-47-8	4-Chloroaniline	ND		9.5	2.0
87-68-3	Hexachlorobutadiene	ND		0.95	0.095
59-50-7	4-Chloro-3-methylphenol	ND		0.57	0.095
91-57-6	2-Methylnaphthalene	ND		0.38	0.057
77-47-4	Hexachlorocyclopentadiene	ND		2.9	0.076
88-06-2	2,4,6-Trichlorophenol	ND		0.57	0.095
95-95-4	2,4,5-Trichlorophenol	ND		0.38	0.095
91-58-7	2-Chloronaphthalene	ND		0.95	0.12
88-74-4	2-Nitroaniline	ND		0.57	0.095
131-11-3	Dimethyl phthalate	ND		0.57	0.095
208-96-8	Acenaphthylene	ND		0.95	0.095
606-20-2	2,6-Dinitrotoluene	0.12	JQ	0.57	0.095
99-09-2	3-Nitroaniline	ND		2.9	0.15
83-32-9	Acenaphthene	ND		0.38	0.076



FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87927-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070404

Lab Sample ID: 580-87927-4

Matrix: Water

Lab File ID: 40scan080119a014.D

Analysis Method: 8270D

Date Collected: 07/23/2019 14:00

Extract. Method: 3520C

Date Extracted: 07/28/2019 12:19

Sample wt/vol: 1048.6(mL)

Date Analyzed: 08/01/2019 15:11

Con. Extract Vol.: 2(mL)

Dilution Factor: 1

Injection Volume: 1(uL)

Level: (low/med) Low

% Moisture: \_\_\_\_\_

GPC Cleanup: (Y/N) N

Analysis Batch No.: 307236

Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
51-28-5	2,4-Dinitrophenol	ND		19	5.5
100-02-7	4-Nitrophenol	ND		14	0.61
132-64-9	Dibenzofuran	ND		0.38	0.057
121-14-2	2,4-Dinitrotoluene	ND		0.95	0.13
84-66-2	Diethyl phthalate	ND		11	0.69
7005-72-3	4-Chlorophenyl phenyl ether	ND		0.57	0.095
86-73-7	Fluorene	ND		1.9	0.086
100-01-6	4-Nitroaniline	ND		1.9	0.12
534-52-1	4,6-Dinitro-2-methylphenol	ND		9.5	2.5
86-30-6	N-Nitrosodiphenylamine	ND		2.9	0.13
101-55-3	4-Bromophenyl phenyl ether	ND		0.57	0.095
118-74-1	Hexachlorobenzene	ND		0.57	0.095
87-86-5	Pentachlorophenol	ND		9.5	2.3
85-01-8	Phenanthrene	ND		0.95	0.12
120-12-7	Anthracene	ND		14	0.13
84-74-2	Di-n-butyl phthalate	ND		2.9	0.52
206-44-0	Fluoranthene	ND		2.9	0.14
129-00-0	Pyrene	ND		1.9	0.095
85-68-7	Butyl benzyl phthalate	0.38	J Q	9.5	0.35
91-94-1	3,3'-Dichlorobenzidine	ND		14	3.0
56-55-3	Benzo[a]anthracene	ND		0.95	0.086
218-01-9	Chrysene	ND		0.57	0.16
117-81-7	Bis(2-ethylhexyl) phthalate	ND		14	6.0
117-84-0	Di-n-octyl phthalate	0.19	J Q	0.95	0.17
50-32-8	Benzo[a]pyrene	ND		0.95	0.15
193-39-5	Indeno[1,2,3-cd]pyrene	ND		0.95	0.048
53-70-3	Dibenz(a,h)anthracene	ND		0.57	0.095
191-24-2	Benzo[g,h,i]perylene	ND		0.95	0.095
86-74-8	Carbazole	ND		0.57	0.095
90-12-0	1-Methylnaphthalene	ND		0.95	0.067
205-99-2	Benzo[b]fluoranthene	ND		0.95	0.12
207-08-9	Benzo[k]fluoranthene	ND		0.95	0.095
108-60-1	bis(chloroisopropyl) ether	ND		0.57	0.20

*Jan 8-2019*

FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87927-1  
SDG No.: \_\_\_\_\_  
Client Sample ID: 19070404 Lab Sample ID: 580-87927-4  
Matrix: Water Lab File ID: 40scan080119a014.D  
Analysis Method: 8270D Date Collected: 07/23/2019 14:00  
Extract. Method: 3520C Date Extracted: 07/28/2019 12:19  
Sample wt/vol: 1048.6(mL) Date Analyzed: 08/01/2019 15:11  
Con. Extract Vol.: 2(mL) Dilution Factor: 1  
Injection Volume: 1(uL) Level: (low/med) Low  
% Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
Analysis Batch No.: 307236 Units: ug/L

CAS NO.	SURROGATE	%REC	Q	LIMITS
367-12-4	2-Fluorophenol (Surr)	48		36-120
4165-62-2	Phenol-d5 (Surr)	54		38-120
4165-60-0	Nitrobenzene-d5 (Surr)	61		46-129
321-60-8	2-Fluorobiphenyl	53		50-120
118-79-6	2,4,6-Tribromophenol (Surr)	54		48-125
1718-51-0	Terphenyl-d14 (Surr)	79		61-126

*mu 829-10*

FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87927-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070405

Lab Sample ID: 580-87927-5

Matrix: Water

Lab File ID: 40scan080119a015.D

Analysis Method: 8270D

Date Collected: 07/23/2019 16:42

Extract. Method: 3520C

Date Extracted: 07/28/2019 12:19

Sample wt/vol: 1040.3(mL)

Date Analyzed: 08/01/2019 15:35

Con. Extract Vol.: 2(mL)

Dilution Factor: 1

Injection Volume: 1(uL)

Level: (low/med) Low

% Moisture: \_\_\_\_\_

GPC Cleanup: (Y/N) N

Analysis Batch No.: 307236

Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
108-95-2	Phenol	ND		3.8	0.28
111-44-4	Bis(2-chloroethyl)ether	ND		0.58	0.096
95-57-8	2-Chlorophenol	ND		0.58	0.21
541-73-1	1,3-Dichlorobenzene	ND		0.38	0.096
106-46-7	1,4-Dichlorobenzene	ND		0.38	0.058
100-51-6	Benzyl alcohol	ND		2.9	0.66
95-50-1	1,2-Dichlorobenzene	ND		0.58	0.096
95-48-7	2-Methylphenol	ND		0.58	0.096
15831-10-4	3 & 4 Methylphenol	ND		0.77	0.17
621-64-7	N-Nitrosodi-n-propylamine	ND		0.58	0.096
67-72-1	Hexachloroethane	ND		0.96	0.096
98-95-3	Nitrobenzene	ND		0.58	0.21
78-59-1	Isophorone	ND		0.38	0.096
88-75-5	2-Nitrophenol	ND		0.96	0.13
105-67-9	2,4-Dimethylphenol	ND		3.8	0.80
65-85-0	Benzoic acid	1.1	JQ	3.8	0.82
111-91-1	Bis(2-chloroethoxy)methane	ND		0.58	0.096
120-83-2	2,4-Dichlorophenol	ND		3.8	0.16
120-82-1	1,2,4-Trichlorobenzene	ND		0.38	0.038
91-20-3	Naphthalene	ND		0.38	0.096
106-47-8	4-Chloroaniline	ND		9.6	2.0
87-68-3	Hexachlorobutadiene	ND		0.96	0.096
59-50-7	4-Chloro-3-methylphenol	ND		0.58	0.096
91-57-6	2-Methylnaphthalene	ND		0.38	0.058
77-47-4	Hexachlorocyclopentadiene	ND		2.9	0.077
88-06-2	2,4,6-Trichlorophenol	ND		0.58	0.096
95-95-4	2,4,5-Trichlorophenol	ND		0.38	0.096
91-58-7	2-Chloronaphthalene	ND		0.96	0.12
88-74-4	2-Nitroaniline	ND		0.58	0.096
131-11-3	Dimethyl phthalate	ND		0.58	0.096
208-96-8	Acenaphthylene	ND		0.96	0.096
606-20-2	2,6-Dinitrotoluene	ND		0.58	0.096
99-09-2	3-Nitroaniline	ND		2.9	0.15
83-32-9	Acenaphthene	ND		0.38	0.077

FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87927-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070405

Lab Sample ID: 580-87927-5

Matrix: Water

Lab File ID: 40scan080119a015.D

Analysis Method: 8270D

Date Collected: 07/23/2019 16:42

Extract. Method: 3520C

Date Extracted: 07/28/2019 12:19

Sample wt/vol: 1040.3(mL)

Date Analyzed: 08/01/2019 15:35

Con. Extract Vol.: 2(mL)

Dilution Factor: 1

Injection Volume: 1(uL)

Level: (low/med) Low

% Moisture: \_\_\_\_\_

GPC Cleanup: (Y/N) N

Analysis Batch No.: 307236

Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
51-28-5	2,4-Dinitrophenol	ND		19	5.6
100-02-7	4-Nitrophenol	ND		14	0.62
132-64-9	Dibenzofuran	ND		0.38	0.058
121-14-2	2,4-Dinitrotoluene	ND		0.96	0.13
84-66-2	Diethyl phthalate	ND		12	0.69
7005-72-3	4-Chlorophenyl phenyl ether	ND		0.58	0.096
86-73-7	Fluorene	ND		1.9	0.087
100-01-6	4-Nitroaniline	ND		1.9	0.12
534-52-1	4,6-Dinitro-2-methylphenol	ND		9.6	2.5
86-30-6	N-Nitrosodiphenylamine	ND		2.9	0.13
101-55-3	4-Bromophenyl phenyl ether	ND		0.58	0.096
118-74-1	Hexachlorobenzene	ND		0.58	0.096
87-86-5	Pentachlorophenol	ND		9.6	2.4
85-01-8	Phenanthrene	ND		0.96	0.12
120-12-7	Anthracene	ND		14	0.13
84-74-2	Di-n-butyl phthalate	ND		2.9	0.53
206-44-0	Fluoranthene	ND		2.9	0.14
129-00-0	Pyrene	ND		1.9	0.096
85-68-7	Butyl benzyl phthalate	0.41	JQ	9.6	0.36
91-94-1	3,3'-Dichlorobenzidine	ND		14	3.1
56-55-3	Benzo[a]anthracene	ND		0.96	0.087
218-01-9	Chrysene	ND		0.58	0.16
117-81-7	Bis(2-ethylhexyl) phthalate	6.3	J	14	6.0
117-84-0	Di-n-octyl phthalate	0.23	J	0.96	0.17
50-32-8	Benzo[a]pyrene	ND		0.96	0.15
193-39-5	Indeno[1,2,3-cd]pyrene	ND		0.96	0.048
53-70-3	Dibenz(a,h)anthracene	ND		0.58	0.096
191-24-2	Benzo[g,h,i]perylene	ND		0.96	0.096
86-74-8	Carbazole	ND		0.58	0.096
90-12-0	1-Methylnaphthalene	ND		0.96	0.067
205-99-2	Benzo[b]fluoranthene	ND		0.96	0.12
207-08-9	Benzo[k]fluoranthene	ND		0.96	0.096
108-60-1	bis(chloroisopropyl) ether	ND		0.58	0.20

FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>Eurofins TestAmerica, Seattle</u>	Job No.: <u>580-87927-1</u>
SDG No.: _____	
Client Sample ID: <u>19070405</u>	Lab Sample ID: <u>580-87927-5</u>
Matrix: <u>Water</u>	Lab File ID: <u>40scan080119a015.D</u>
Analysis Method: <u>8270D</u>	Date Collected: <u>07/23/2019 16:42</u>
Extract. Method: <u>3520C</u>	Date Extracted: <u>07/28/2019 12:19</u>
Sample wt/vol: <u>1040.3(mL)</u>	Date Analyzed: <u>08/01/2019 15:35</u>
Con. Extract Vol.: <u>2(mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>1(uL)</u>	Level: (low/med) <u>Low</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>307236</u>	Units: <u>ug/L</u>

CAS NO.	SURROGATE	%REC	Q	LIMITS
367-12-4	2-Fluorophenol (Surr)	67		36-120
4165-62-2	Phenol-d5 (Surr)	77		38-120
4165-60-0	Nitrobenzene-d5 (Surr)	79		46-129
321-60-8	2-Fluorobiphenyl	84		50-120
118-79-6	2,4,6-Tribromophenol (Surr)	82		48-125
1718-51-0	Terphenyl-d14 (Surr)	86		61-126

*mw 8-28-19*



FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87927-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070406

Lab Sample ID: 580-87927-6

Matrix: Water

Lab File ID: 40scan080119a016.D

Analysis Method: 8270D

Date Collected: 07/23/2019 18:41

Extract. Method: 3520C

Date Extracted: 07/28/2019 12:19

Sample wt/vol: 1054.2 (mL)

Date Analyzed: 08/01/2019 15:59

Con. Extract Vol.: 2 (mL)

Dilution Factor: 1

Injection Volume: 1 (uL)

Level: (low/med) Low

% Moisture: \_\_\_\_\_

GPC Cleanup: (Y/N) N

Analysis Batch No.: 307236

Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
108-95-2	Phenol	ND		3.8	0.28
111-44-4	Bis(2-chloroethyl)ether	ND		0.57	0.095
95-57-8	2-Chlorophenol	ND		0.57	0.21
541-73-1	1,3-Dichlorobenzene	ND		0.38	0.095
106-46-7	1,4-Dichlorobenzene	ND		0.38	0.057
100-51-6	Benzyl alcohol	ND		2.8	0.65
95-50-1	1,2-Dichlorobenzene	ND		0.57	0.095
95-48-7	2-Methylphenol	ND		0.57	0.095
15831-10-4	3 & 4 Methylphenol	ND		0.76	0.17
621-64-7	N-Nitrosodi-n-propylamine	ND		0.57	0.095
67-72-1	Hexachloroethane	ND		0.95	0.095
98-95-3	Nitrobenzene	ND		0.57	0.21
78-59-1	Isophorone	ND		0.38	0.095
88-75-5	2-Nitrophenol	ND		0.95	0.13
105-67-9	2,4-Dimethylphenol	ND		3.8	0.79
65-85-0	Benzoic acid	0.93	JQ	3.8	0.81
111-91-1	Bis(2-chloroethoxy)methane	ND		0.57	0.095
120-83-2	2,4-Dichlorophenol	ND		3.8	0.16
120-82-1	1,2,4-Trichlorobenzene	ND		0.38	0.038
91-20-3	Naphthalene	ND		0.38	0.095
106-47-8	4-Chloroaniline	ND		9.5	2.0
87-68-3	Hexachlorobutadiene	ND		0.95	0.095
59-50-7	4-Chloro-3-methylphenol	ND		0.57	0.095
91-57-6	2-Methylnaphthalene	ND		0.38	0.057
77-47-4	Hexachlorocyclopentadiene	ND		2.8	0.076
88-06-2	2,4,6-Trichlorophenol	ND		0.57	0.095
95-95-4	2,4,5-Trichlorophenol	ND		0.38	0.095
91-58-7	2-Chloronaphthalene	ND		0.95	0.12
88-74-4	2-Nitroaniline	ND		0.57	0.095
131-11-3	Dimethyl phthalate	ND		0.57	0.095
208-96-8	Acenaphthylene	ND		0.95	0.095
606-20-2	2,6-Dinitrotoluene	ND		0.57	0.095
99-09-2	3-Nitroaniline	ND		2.8	0.15
83-32-9	Acenaphthene	ND		0.38	0.076

*MW*  
*8-29-19*

FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87927-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070406

Lab Sample ID: 580-87927-6

Matrix: Water

Lab File ID: 40scan080119a016.D

Analysis Method: 8270D

Date Collected: 07/23/2019 18:41

Extract. Method: 3520C

Date Extracted: 07/28/2019 12:19

Sample wt/vol: 1054.2 (mL)

Date Analyzed: 08/01/2019 15:59

Con. Extract Vol.: 2 (mL)

Dilution Factor: 1

Injection Volume: 1 (uL)

Level: (low/med) Low

% Moisture: \_\_\_\_\_

GPC Cleanup: (Y/N) N

Analysis Batch No.: 307236

Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
51-28-5	2,4-Dinitrophenol	ND		19	5.5
100-02-7	4-Nitrophenol	ND		14	0.61
132-64-9	Dibenzofuran	ND		0.38	0.057
121-14-2	2,4-Dinitrotoluene	ND		0.95	0.13
84-66-2	Diethyl phthalate	ND		11	0.68
7005-72-3	4-Chlorophenyl phenyl ether	ND		0.57	0.095
86-73-7	Fluorene	ND		1.9	0.085
100-01-6	4-Nitroaniline	ND		1.9	0.12
534-52-1	4,6-Dinitro-2-methylphenol	ND		9.5	2.5
86-30-6	N-Nitrosodiphenylamine	ND		2.8	0.13
101-55-3	4-Bromophenyl phenyl ether	ND		0.57	0.095
118-74-1	Hexachlorobenzene	ND		0.57	0.095
87-86-5	Pentachlorophenol	ND		9.5	2.3
85-01-8	Phenanthrene	ND		0.95	0.12
120-12-7	Anthracene	ND		14	0.13
84-74-2	Di-n-butyl phthalate	ND		2.8	0.52
206-44-0	Fluoranthene	ND		2.8	0.14
129-00-0	Pyrene	ND		1.9	0.095
85-68-7	Butyl benzyl phthalate	ND		9.5	0.35
91-94-1	3,3'-Dichlorobenzidine	ND		14	3.0
56-55-3	Benzo[a]anthracene	ND		0.95	0.085
218-01-9	Chrysene	ND		0.57	0.16
117-81-7	Bis(2-ethylhexyl) phthalate	10	J	14	5.9
117-84-0	Di-n-octyl phthalate	0.31	J	0.95	0.17
50-32-8	Benzo[a]pyrene	ND		0.95	0.15
193-39-5	Indeno[1,2,3-cd]pyrene	ND		0.95	0.047
53-70-3	Dibenz(a,h)anthracene	ND		0.57	0.095
191-24-2	Benzo[g,h,i]perylene	ND		0.95	0.095
86-74-8	Carbazole	ND		0.57	0.095
90-12-0	1-Methylnaphthalene	ND		0.95	0.066
205-99-2	Benzo[b]fluoranthene	ND		0.95	0.12
207-08-9	Benzo[k]fluoranthene	ND		0.95	0.095
108-60-1	bis(chloroisopropyl) ether	ND		0.57	0.20

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FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87927-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070406 Lab Sample ID: 580-87927-6  
 Matrix: Water Lab File ID: 40scan080119a016.D  
 Analysis Method: 8270D Date Collected: 07/23/2019 18:41  
 Extract. Method: 3520C Date Extracted: 07/28/2019 12:19  
 Sample wt/vol: 1054.2 (mL) Date Analyzed: 08/01/2019 15:59  
 Con. Extract Vol.: 2 (mL) Dilution Factor: 1  
 Injection Volume: 1 (uL) Level: (low/med) Low  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 307236 Units: ug/L

CAS NO.	SURROGATE	%REC	Q	LIMITS
367-12-4	2-Fluorophenol (Surr)	67		36-120
4165-62-2	Phenol-d5 (Surr)	77		38-120
4165-60-0	Nitrobenzene-d5 (Surr)	81		46-129
321-60-8	2-Fluorobiphenyl	73		50-120
118-79-6	2,4,6-Tribromophenol (Surr)	86		48-125
1718-51-0	Terphenyl-d14 (Surr)	93		61-126

*MW 829-14*



FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87927-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070408

Lab Sample ID: 580-87927-7

Matrix: Water

Lab File ID: 40scan080119a017.D

Analysis Method: 8270D

Date Collected: 07/24/2019 12:10

Extract. Method: 3520C

Date Extracted: 07/28/2019 12:19

Sample wt/vol: 940.3(mL)

Date Analyzed: 08/01/2019 16:22

Con. Extract Vol.: 2(mL)

Dilution Factor: 1

Injection Volume: 1(uL)

Level: (low/med) Low

% Moisture: \_\_\_\_\_

GPC Cleanup: (Y/N) N

Analysis Batch No.: 307236

Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
108-95-2	Phenol	ND		4.3	0.31
111-44-4	Bis(2-chloroethyl)ether	ND		0.64	0.11
95-57-8	2-Chlorophenol	ND		0.64	0.23
541-73-1	1,3-Dichlorobenzene	ND		0.43	0.11
106-46-7	1,4-Dichlorobenzene	ND		0.43	0.064
100-51-6	Benzyl alcohol	ND		3.2	0.73
95-50-1	1,2-Dichlorobenzene	ND		0.64	0.11
95-48-7	2-Methylphenol	ND		0.64	0.11
15831-10-4	3 & 4 Methylphenol	ND		0.85	0.19
621-64-7	N-Nitrosodi-n-propylamine	ND		0.64	0.11
67-72-1	Hexachloroethane	ND		1.1	0.11
98-95-3	Nitrobenzene	ND		0.64	0.23
78-59-1	Isophorone	0.21	JQ	0.43	0.11
88-75-5	2-Nitrophenol	ND		1.1	0.15
105-67-9	2,4-Dimethylphenol	ND		4.3	0.88
65-85-0	Benzoic acid	1.9	JQ	4.3	0.90
111-91-1	Bis(2-chloroethoxy)methane	ND		0.64	0.11
120-83-2	2,4-Dichlorophenol	ND		4.3	0.18
120-82-1	1,2,4-Trichlorobenzene	ND		0.43	0.043
91-20-3	Naphthalene	ND		0.43	0.11
106-47-8	4-Chloroaniline	ND		11	2.2
87-68-3	Hexachlorobutadiene	ND		1.1	0.11
59-50-7	4-Chloro-3-methylphenol	ND		0.64	0.11
91-57-6	2-Methylnaphthalene	ND		0.43	0.064
77-47-4	Hexachlorocyclopentadiene	ND		3.2	0.085
88-06-2	2,4,6-Trichlorophenol	ND		0.64	0.11
95-95-4	2,4,5-Trichlorophenol	ND		0.43	0.11
91-58-7	2-Chloronaphthalene	ND		1.1	0.14
88-74-4	2-Nitroaniline	ND		0.64	0.11
131-11-3	Dimethyl phthalate	ND		0.64	0.11
208-96-8	Acenaphthylene	ND		1.1	0.11
606-20-2	2,6-Dinitrotoluene	0.18	JQ	0.64	0.11
99-09-2	3-Nitroaniline	0.27	JQ	3.2	0.17
83-32-9	Acenaphthene	ND		0.43	0.085

FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87927-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070408

Lab Sample ID: 580-87927-7

Matrix: Water

Lab File ID: 40scan080119a017.D

Analysis Method: 8270D

Date Collected: 07/24/2019 12:10

Extract. Method: 3520C

Date Extracted: 07/28/2019 12:19

Sample wt/vol: 940.3(mL)

Date Analyzed: 08/01/2019 16:22

Con. Extract Vol.: 2(mL)

Dilution Factor: 1

Injection Volume: 1(uL)

Level: (low/med) Low

% Moisture: \_\_\_\_\_

GPC Cleanup: (Y/N) N

Analysis Batch No.: 307236

Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
51-28-5	2,4-Dinitrophenol	ND		21	6.2
100-02-7	4-Nitrophenol	ND		16	0.68
132-64-9	Dibenzofuran	ND		0.43	0.064
121-14-2	2,4-Dinitrotoluene	ND		1.1	0.15
84-66-2	Diethyl phthalate	ND		13	0.77
7005-72-3	4-Chlorophenyl phenyl ether	ND		0.64	0.11
86-73-7	Fluorene	ND		2.1	0.096
100-01-6	4-Nitroaniline	ND		2.1	0.14
534-52-1	4,6-Dinitro-2-methylphenol	ND		11	2.8
86-30-6	N-Nitrosodiphenylamine	ND		3.2	0.15
101-55-3	4-Bromophenyl phenyl ether	ND		0.64	0.11
118-74-1	Hexachlorobenzene	ND		0.64	0.11
87-86-5	Pentachlorophenol	ND		11	2.6
85-01-8	Phenanthrene	ND		1.1	0.14
120-12-7	Anthracene	ND		16	0.15
84-74-2	Di-n-butyl phthalate	ND		3.2	0.58
206-44-0	Fluoranthene	ND		3.2	0.16
129-00-0	Pyrene	ND		2.1	0.11
85-68-7	Butyl benzyl phthalate	ND		11	0.39
91-94-1	3,3'-Dichlorobenzidine	ND		16	3.4
56-55-3	Benzo[a]anthracene	ND		1.1	0.096
218-01-9	Chrysene	ND		0.64	0.18
117-81-7	Bis(2-ethylhexyl) phthalate	ND	fm	16	6.7
117-84-0	Di-n-octyl phthalate	0.21	JQ	1.1	0.19
50-32-8	Benzo[a]pyrene	ND		1.1	0.17
193-39-5	Indeno[1,2,3-cd]pyrene	ND		1.1	0.053
53-70-3	Dibenz(a,h)anthracene	ND		0.64	0.11
191-24-2	Benzo[g,h,i]perylene	ND		1.1	0.11
86-74-8	Carbazole	ND	fm	0.64	0.11
90-12-0	1-Methylnaphthalene	ND		1.1	0.074
205-99-2	Benzo[b]fluoranthene	ND		1.1	0.14
207-08-9	Benzo[k]fluoranthene	ND		1.1	0.11
108-60-1	bis(chloroisopropyl) ether	ND		0.64	0.22



FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87927-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070408 Lab Sample ID: 580-87927-7  
 Matrix: Water Lab File ID: 40scan080119a017.D  
 Analysis Method: 8270D Date Collected: 07/24/2019 12:10  
 Extract. Method: 3520C Date Extracted: 07/28/2019 12:19  
 Sample wt/vol: 940.3(mL) Date Analyzed: 08/01/2019 16:22  
 Con. Extract Vol.: 2(mL) Dilution Factor: 1  
 Injection Volume: 1(uL) Level: (low/med) Low  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 307236 Units: ug/L

CAS NO.	SURROGATE	%REC	Q	LIMITS
367-12-4	2-Fluorophenol (Surr)	52		36-120
4165-62-2	Phenol-d5 (Surr)	68		38-120
4165-60-0	Nitrobenzene-d5 (Surr)	83		46-129
321-60-8	2-Fluorobiphenyl	61		50-120
118-79-6	2,4,6-Tribromophenol (Surr)	85		48-125
1718-51-0	Terphenyl-d14 (Surr)	94		61-126

*Jan 8-29-19*

FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87927-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070403

Lab Sample ID: 580-87927-8

Matrix: Water

Lab File ID: 40scan080119a018.D

Analysis Method: 8270D

Date Collected: 07/23/2019 12:22

Extract. Method: 3520C

Date Extracted: 07/28/2019 12:19

Sample wt/vol: 966.9(mL)

Date Analyzed: 08/01/2019 16:46

Con. Extract Vol.: 2(mL)

Dilution Factor: 1

Injection Volume: 1(uL)

Level: (low/med) Low

% Moisture: \_\_\_\_\_

GPC Cleanup: (Y/N) N

Analysis Batch No.: 307236

Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
108-95-2	Phenol	ND		4.1	0.30
111-44-4	Bis(2-chloroethyl)ether	ND		0.62	0.10
95-57-8	2-Chlorophenol	ND		0.62	0.23
541-73-1	1,3-Dichlorobenzene	ND		0.41	0.10
106-46-7	1,4-Dichlorobenzene	ND		0.41	0.062
100-51-6	Benzyl alcohol	ND		3.1	0.71
95-50-1	1,2-Dichlorobenzene	ND		0.62	0.10
95-48-7	2-Methylphenol	ND		0.62	0.10
15831-10-4	3 & 4 Methylphenol	ND		0.83	0.19
621-64-7	N-Nitrosodi-n-propylamine	ND		0.62	0.10
67-72-1	Hexachloroethane	ND		1.0	0.10
98-95-3	Nitrobenzene	ND		0.62	0.23
78-59-1	Isophorone	ND		0.41	0.10
88-75-5	2-Nitrophenol	ND		1.0	0.14
105-67-9	2,4-Dimethylphenol	ND		4.1	0.86
65-85-0	Benzoic acid	1.0	JQ	4.1	0.88
111-91-1	Bis(2-chloroethoxy)methane	ND		0.62	0.10
120-83-2	2,4-Dichlorophenol	ND		4.1	0.18
120-82-1	1,2,4-Trichlorobenzene	ND		0.41	0.041
91-20-3	Naphthalene	ND		0.41	0.10
106-47-8	4-Chloroaniline	ND		10	2.2
87-68-3	Hexachlorobutadiene	ND		1.0	0.10
59-50-7	4-Chloro-3-methylphenol	ND		0.62	0.10
91-57-6	2-Methylnaphthalene	ND		0.41	0.062
77-47-4	Hexachlorocyclopentadiene	ND		3.1	0.083
88-06-2	2,4,6-Trichlorophenol	ND		0.62	0.10
95-95-4	2,4,5-Trichlorophenol	ND		0.41	0.10
91-58-7	2-Chloronaphthalene	ND		1.0	0.13
88-74-4	2-Nitroaniline	ND		0.62	0.10
131-11-3	Dimethyl phthalate	ND		0.62	0.10
208-96-8	Acenaphthylene	ND		1.0	0.10
606-20-2	2,6-Dinitrotoluene	ND		0.62	0.10
99-09-2	3-Nitroaniline	ND		3.1	0.17
83-32-9	Acenaphthene	ND		0.41	0.083



FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87927-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070403

Lab Sample ID: 580-87927-8

Matrix: Water

Lab File ID: 40scan080119a018.D

Analysis Method: 8270D

Date Collected: 07/23/2019 12:22

Extract. Method: 3520C

Date Extracted: 07/28/2019 12:19

Sample wt/vol: 966.9(mL)

Date Analyzed: 08/01/2019 16:46

Con. Extract Vol.: 2(mL)

Dilution Factor: 1

Injection Volume: 1(uL)

Level: (low/med) Low

% Moisture: \_\_\_\_\_

GPC Cleanup: (Y/N) N

Analysis Batch No.: 307236

Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
51-28-5	2,4-Dinitrophenol	ND		21	6.0
100-02-7	4-Nitrophenol	ND		16	0.66
132-64-9	Dibenzofuran	ND		0.41	0.062
121-14-2	2,4-Dinitrotoluene	ND		1.0	0.14
84-66-2	Diethyl phthalate	ND		12	0.74
7005-72-3	4-Chlorophenyl phenyl ether	ND		0.62	0.10
86-73-7	Fluorene	ND		2.1	0.093
100-01-6	4-Nitroaniline	ND		2.1	0.13
534-52-1	4,6-Dinitro-2-methylphenol	ND		10	2.7
86-30-6	N-Nitrosodiphenylamine	ND		3.1	0.14
101-55-3	4-Bromophenyl phenyl ether	ND		0.62	0.10
118-74-1	Hexachlorobenzene	ND		0.62	0.10
87-86-5	Pentachlorophenol	ND		10	2.5
85-01-8	Phenanthrene	ND		1.0	0.13
120-12-7	Anthracene	ND		16	0.14
84-74-2	Di-n-butyl phthalate	ND		3.1	0.57
206-44-0	Fluoranthene	ND		3.1	0.16
129-00-0	Pyrene	ND		2.1	0.10
85-68-7	Butyl benzyl phthalate	ND		10	0.38
91-94-1	3,3'-Dichlorobenzidine	ND		16	3.3
56-55-3	Benzo[a]anthracene	ND		1.0	0.093
218-01-9	Chrysene	ND		0.62	0.18
117-81-7	Bis(2-ethylhexyl) phthalate	ND		16	6.5
117-84-0	Di-n-octyl phthalate	ND		1.0	0.19
50-32-8	Benzo[a]pyrene	ND		1.0	0.17
193-39-5	Indeno[1,2,3-cd]pyrene	ND		1.0	0.052
53-70-3	Dibenz(a,h)anthracene	ND		0.62	0.10
191-24-2	Benzo[g,h,i]perylene	ND		1.0	0.10
86-74-8	Carbazole	ND		0.62	0.10
90-12-0	1-Methylnaphthalene	ND		1.0	0.072
205-99-2	Benzo[b]fluoranthene	ND		1.0	0.13
207-08-9	Benzo[k]fluoranthene	ND		1.0	0.10
108-60-1	bis(chloroisopropyl) ether	ND		0.62	0.22

FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87927-1  
SDG No.: \_\_\_\_\_  
Client Sample ID: 19070403 Lab Sample ID: 580-87927-8  
Matrix: Water Lab File ID: 40scan080119a018.D  
Analysis Method: 8270D Date Collected: 07/23/2019 12:22  
Extract. Method: 3520C Date Extracted: 07/28/2019 12:19  
Sample wt/vol: 966.9(mL) Date Analyzed: 08/01/2019 16:46  
Con. Extract Vol.: 2(mL) Dilution Factor: 1  
Injection Volume: 1(uL) Level: (low/med) Low  
% Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
Analysis Batch No.: 307236 Units: ug/L

CAS NO.	SURROGATE	%REC	Q	LIMITS
367-12-4	2-Fluorophenol (Surr)	73		36-120
4165-62-2	Phenol-d5 (Surr)	82		38-120
4165-60-0	Nitrobenzene-d5 (Surr)	82		46-129
321-60-8	2-Fluorobiphenyl	70		50-120
118-79-6	2,4,6-Tribromophenol (Surr)	86		48-125
1718-51-0	Terphenyl-d14 (Surr)	94		61-126

*W 8270D*



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### MEMORANDUM

DATE: August 29, 2019

TO: Seth Wing, START-IV Project Manager, E & E, Seattle, WA

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington *MW*

SUBJ: **Organic Data Quality Assurance Review, May Creek Removal Action Site, Renton, Washington**

REF: TO: TO-68HE0718F0470 PAN: 1004530.0470.001.01

The data quality assurance review of 9 water samples collected from the May Creek Removal Action site in Renton, Washington, has been completed. Volatile Organic Compound (VOC) analysis (EPA Method 8260) was performed by Test America, Inc., Tacoma, Washington. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Manual Process (S2B/4VM).

The samples were numbered:

19070401	19070402	19070403	19070404	19070405
19070406	19070407	19070408	19070611	

#### Data Qualifications:

**1. Sample Holding Times: Acceptable.**

The samples were maintained within the QC limits of  $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ . The samples were collected on July 23 and 24, 2019, were received at the laboratory on July 25, 2019, and were analyzed by August 6, 2019, therefore meeting QC criteria of less than 14 days between collection and analysis for preserved water samples.

**2. Tuning: Satisfactory.**

Tuning was performed at the beginning of each 12-hour analysis sequence. All results were within QC limits except the BFB tune report associated with analytical batch 306774 had by 0.1% for m/z 176; this value meets method criteria and is the result of a rounding/significant figure precision error and no actions were taken based on this.

**3. Initial Calibration: Satisfactory.**

All applicable average Relative Response Factors (RRFs) were within the QC limits. All Relative Standard Deviations (RSDs) and/or correlation coefficients were within the QC limits.

**4. Continuing Calibration: Satisfactory.**

All RRFs were within the QC limits except as noted in the initial calibration section; no additional actions were taken. Applicable percent differences were within QC limits (most recoveries

were high and the outliers were not detected in any samples) except chloroform associated with samples 19070407 and 19070611; positive results associated with high recoveries were qualified as estimated quantities with a high bias (JH).

**5. Blanks: Satisfactory.**

A method blank was analyzed for each 20 sample batch per matrix. There were no detections in any method blank. There were no detections in the trip blank except toluene (0.053 ug/L) and chloroform (0.25 ug/L); associated positive sample results less than the reporting limit were qualified as not detected (U).

**6. System Monitoring Compounds (SMCs): Satisfactory.**

All SMC recoveries were within QC limits except on SMC in sample 19070408; no actions were taken as there were no detections in this sample.

**7. Blank Spike (BS)/BS Duplicate (BSD)/Matrix Spike (MS) Analysis: Satisfactory.**

BS, BSD and MS analyses were performed per SDG or per matrix per concentration level, whichever was more frequent. All recoveries were within QC limits except Bromomethane, Chloromethane, Vinyl chloride, and Dichlorodifluoromethane failed the recovery criteria high in the BS and/or BSD. These analytes were not detected in the associated samples; therefore, the data have been reported.

**8. Spike Duplicate Analysis: Acceptable.**

Spike duplicate analyses were performed per SDG or per matrix per concentration level, whichever was more frequent. All spike duplicate results were within QC limits.

**9. Internal Standards: Acceptable.**

All internal standards were within  $\pm 30$  seconds of the continuing calibration internal standard retention times. All area counts were within 50 % to 200 % of the continuing calibration area counts.

**10. Overall Assessment of Data for Use**

A total of 540 results were validated in this data memorandum. No sample results were qualified as estimated quantities (J) based on duplicate precision outliers, spike accuracy outliers, holding time outliers, incorrect sample containers, or sample temperature outliers. No sample results were rejected (R).

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the analytical method(s), the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, and/or the Office of Emergency and Remedial Response Publication "National Functional Guidelines for Superfund Organic Methods Data Review, January 2017". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

H - The sample result is biased high.

J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.



- K - The bias of the sample is not known.
- L - The sample result is biased low.
- N - The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification".
- NJ - The analyte has been "tentatively identified" or "presumptively" as present and the associated numerical value is the estimated concentration in the sample.
- Q - Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.
- R - The data is rejected and unusable. The analyte may or may not be present in the sample.
- U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87927-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070401

Lab Sample ID: 580-87927-1

Matrix: Water

Lab File ID: 07262019\_015.D

Analysis Method: 8260C

Date Collected: 07/23/2019 10:27

Sample wt/vol: 10(mL)

Date Analyzed: 07/26/2019 20:22

Soil Aliquot Vol: \_\_\_\_\_

Dilution Factor: 1

Soil Extract Vol.: \_\_\_\_\_

GC Column: 624SIL-MS ID: 0.25 (mm)

% Moisture: \_\_\_\_\_

Level: (low/med) Low

Analysis Batch No.: 306774

Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
95-50-1	1,2-Dichlorobenzene	ND		0.30	0.050
95-49-8	2-Chlorotoluene	ND		0.50	0.12
96-18-4	1,2,3-Trichloropropane	ND		0.20	0.050
56-23-5	Carbon tetrachloride	ND		0.20	0.025
10061-01-5	cis-1,3-Dichloropropene	ND		0.20	0.090
108-90-7	Chlorobenzene	ND		0.20	0.025
75-01-4	Vinyl chloride	ND		0.020	0.013
135-98-8	sec-Butylbenzene	ND		1.0	0.17
74-95-3	Dibromomethane	ND		0.20	0.062
179601-23-1	m-Xylene & p-Xylene	ND		0.50	0.12
95-47-6	o-Xylene	ND		0.50	0.15
120-82-1	1,2,4-Trichlorobenzene	ND		0.30	0.072
100-42-5	Styrene	ND		0.50	0.19
74-97-5	Chlorobromomethane	ND		0.20	0.025
75-27-4	Dichlorobromomethane	ND		0.20	0.060
541-73-1	1,3-Dichlorobenzene	ND		0.30	0.050
71-43-2	Benzene	ND		0.20	0.030
75-00-3	Chloroethane	ND		0.50	0.096
10061-02-6	trans-1,3-Dichloropropene	ND		0.20	0.092
87-61-6	1,2,3-Trichlorobenzene	ND		0.50	0.15
103-65-1	N-Propylbenzene	ND		0.30	0.091
99-87-6	4-Isopropyltoluene	ND		0.30	0.050
104-51-8	n-Butylbenzene	ND		0.50	0.080
563-58-6	1,1-Dichloropropene	ND		0.20	0.036
156-59-2	cis-1,2-Dichloroethene	ND		0.20	0.055
79-34-5	1,1,2,2-Tetrachloroethane	ND		0.20	0.056
95-63-6	1,2,4-Trimethylbenzene	ND		0.30	0.072
108-88-3	Toluene	ND		0.20	0.050
91-20-3	Naphthalene	ND		1.0	0.22
108-67-8	1,3,5-Trimethylbenzene	ND		0.50	0.15
142-28-9	1,3-Dichloropropane	ND		0.20	0.056
67-66-3	Chloroform	0.031	J	0.20	0.030
106-43-4	4-Chlorotoluene	ND		0.30	0.050
124-48-1	Chlorodibromomethane	ND		0.20	0.055
75-71-8	Dichlorodifluoromethane	ND		0.40	0.13
79-00-5	1,1,2-Trichloroethane	ND		0.20	0.070

MW 829-19

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87927-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070401 Lab Sample ID: 580-87927-1  
 Matrix: Water Lab File ID: 07262019\_015.D  
 Analysis Method: 8260C Date Collected: 07/23/2019 10:27  
 Sample wt/vol: 10 (mL) Date Analyzed: 07/26/2019 20:22  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: 624SIL-MS ID: 0.25 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 306774 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
98-06-6	tert-Butylbenzene	ND		0.50	0.10
74-87-3	Chloromethane	ND	<i>mm</i>	0.50	0.15
75-09-2	Methylene Chloride	ND		5.0	0.74
75-35-4	1,1-Dichloroethene	ND		0.20	0.10
98-82-8	Isopropylbenzene	ND		1.0	0.19
107-06-2	1,2-Dichloroethane	ND		0.20	0.043
127-18-4	Tetrachloroethene	ND		0.50	0.084
71-55-6	1,1,1-Trichloroethane	ND		0.20	0.025
594-20-7	2,2-Dichloropropane	ND		0.50	0.060
106-93-4	Ethylene Dibromide	ND		0.10	0.025
75-25-2	Bromoform	ND		0.50	0.16
96-12-8	1,2-Dibromo-3-Chloropropane	ND		2.0	0.44
75-69-4	Trichlorofluoromethane	ND		0.50	0.11
79-01-6	Trichloroethene	ND		0.20	0.066
108-86-1	Bromobenzene	ND		0.20	0.035
78-87-5	1,2-Dichloropropane	ND		0.20	0.060
630-20-6	1,1,1,2-Tetrachloroethane	ND		0.30	0.027
100-41-4	Ethylbenzene	ND		0.20	0.030
156-60-5	trans-1,2-Dichloroethene	ND		0.20	0.089
87-68-3	Hexachlorobutadiene	ND		0.50	0.15
75-34-3	1,1-Dichloroethane	ND		0.20	0.025
74-83-9	Bromomethane	ND	<i>mm</i>	0.50	0.16
106-46-7	1,4-Dichlorobenzene	ND		0.30	0.050
1634-04-4	Methyl tert-butyl ether	ND		0.30	0.070

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	88		80-120
2037-26-5	Toluene-d8 (Surr)	102		80-120
98-08-8	Trifluorotoluene (Surr)	111		80-120
1868-53-7	Dibromofluoromethane (Surr)	101		80-120
17060-07-0	1,2-Dichloroethane-d4 (Surr)	106		80-120

*mm 8-29-19*

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87927-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070402

Lab Sample ID: 580-87927-2

Matrix: Water

Lab File ID: 07262019\_018.D

Analysis Method: 8260C

Date Collected: 07/23/2019 10:57

Sample wt/vol: 10(mL)

Date Analyzed: 07/26/2019 21:42

Soil Aliquot Vol: \_\_\_\_\_

Dilution Factor: 1

Soil Extract Vol.: \_\_\_\_\_

GC Column: 624SIL-MS ID: 0.25 (mm)

% Moisture: \_\_\_\_\_

Level: (low/med) Low

Analysis Batch No.: 306774

Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
95-50-1	1,2-Dichlorobenzene	ND		0.30	0.050
95-49-8	2-Chlorotoluene	ND		0.50	0.12
96-18-4	1,2,3-Trichloropropane	ND		0.20	0.050
56-23-5	Carbon tetrachloride	ND		0.20	0.025
10061-01-5	cis-1,3-Dichloropropene	ND		0.20	0.090
108-90-7	Chlorobenzene	ND		0.20	0.025
75-01-4	Vinyl chloride	ND		0.020	0.013
135-98-8	sec-Butylbenzene	ND		1.0	0.17
74-95-3	Dibromomethane	ND		0.20	0.062
179601-23-1	m-Xylene & p-Xylene	ND		0.50	0.12
95-47-6	o-Xylene	ND		0.50	0.15
120-82-1	1,2,4-Trichlorobenzene	ND		0.30	0.072
100-42-5	Styrene	ND		0.50	0.19
74-97-5	Chlorobromomethane	ND		0.20	0.025
75-27-4	Dichlorobromomethane	ND		0.20	0.060
541-73-1	1,3-Dichlorobenzene	ND		0.30	0.050
71-43-2	Benzene	ND		0.20	0.030
75-00-3	Chloroethane	ND		0.50	0.096
10061-02-6	trans-1,3-Dichloropropene	ND		0.20	0.092
87-61-6	1,2,3-Trichlorobenzene	ND		0.50	0.15
103-65-1	N-Propylbenzene	ND		0.30	0.091
99-87-6	4-Isopropyltoluene	ND		0.30	0.050
104-51-8	n-Butylbenzene	ND		0.50	0.080
563-58-6	1,1-Dichloropropene	ND		0.20	0.036
156-59-2	cis-1,2-Dichloroethene	ND		0.20	0.055
79-34-5	1,1,2,2-Tetrachloroethane	ND		0.20	0.056
95-63-6	1,2,4-Trimethylbenzene	ND		0.30	0.072
108-88-3	Toluene	ND		0.20	0.050
91-20-3	Naphthalene	ND		1.0	0.22
108-67-8	1,3,5-Trimethylbenzene	ND		0.50	0.15
142-28-9	1,3-Dichloropropene	ND		0.20	0.056
67-66-3	Chloroform	ND		0.20	0.030
106-43-4	4-Chlorotoluene	ND		0.30	0.050
124-48-1	Chlorodibromomethane	ND		0.20	0.055
75-71-8	Dichlorodifluoromethane	ND		0.40	0.13
79-00-5	1,1,2-Trichloroethane	ND		0.20	0.070



FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87927-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070402 Lab Sample ID: 580-87927-2  
 Matrix: Water Lab File ID: 07262019\_018.D  
 Analysis Method: 8260C Date Collected: 07/23/2019 10:57  
 Sample wt/vol: 10 (mL) Date Analyzed: 07/26/2019 21:42  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: 624SIL-MS ID: 0.25 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 306774 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
98-06-6	tert-Butylbenzene	ND		0.50	0.10
74-87-3	Chloromethane	ND		0.50	0.15
75-09-2	Methylene Chloride	ND		5.0	0.74
75-35-4	1,1-Dichloroethene	ND		0.20	0.10
98-82-8	Isopropylbenzene	ND		1.0	0.19
107-06-2	1,2-Dichloroethane	ND		0.20	0.043
127-18-4	Tetrachloroethene	ND		0.50	0.084
71-55-6	1,1,1-Trichloroethane	ND		0.20	0.025
594-20-7	2,2-Dichloropropane	ND		0.50	0.060
106-93-4	Ethylene Dibromide	ND		0.10	0.025
75-25-2	Bromoform	ND		0.50	0.16
96-12-8	1,2-Dibromo-3-Chloropropane	ND		2.0	0.44
75-69-4	Trichlorofluoromethane	ND		0.50	0.11
79-01-6	Trichloroethene	ND		0.20	0.066
108-86-1	Bromobenzene	ND		0.20	0.035
78-87-5	1,2-Dichloropropane	ND		0.20	0.060
630-20-6	1,1,1,2-Tetrachloroethane	ND		0.30	0.027
100-41-4	Ethylbenzene	ND		0.20	0.030
156-60-5	trans-1,2-Dichloroethene	ND		0.20	0.089
87-68-3	Hexachlorobutadiene	ND		0.50	0.15
75-34-3	1,1-Dichloroethane	ND		0.20	0.025
74-83-9	Bromomethane	ND		0.50	0.16
106-46-7	1,4-Dichlorobenzene	ND		0.30	0.050
1634-04-4	Methyl tert-butyl ether	ND		0.30	0.070

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	90		80-120
2037-26-5	Toluene-d8 (Surr)	100		80-120
98-08-8	Trifluorotoluene (Surr)	105		80-120
1868-53-7	Dibromofluoromethane (Surr)	102		80-120
17060-07-0	1,2-Dichloroethane-d4 (Surr)	107		80-120

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87927-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070407

Lab Sample ID: 580-87927-3

Matrix: Water

Lab File ID: 07311922.D

Analysis Method: 8260C

Date Collected: 07/24/2019 10:10

Sample wt/vol: 10 (mL)

Date Analyzed: 08/02/2019 00:09

Soil Aliquot Vol: \_\_\_\_\_

Dilution Factor: 1

Soil Extract Vol.: \_\_\_\_\_

GC Column: DB-VRX ID: 0.25 (mm)

% Moisture: \_\_\_\_\_

Level: (low/med) Low

Analysis Batch No.: 307312

Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
95-50-1	1,2-Dichlorobenzene	ND		0.30	0.050
95-49-8	2-Chlorotoluene	ND		0.50	0.12
96-18-4	1,2,3-Trichloropropane	ND		0.20	0.050
56-23-5	Carbon tetrachloride	ND		0.20	0.025
10061-01-5	cis-1,3-Dichloropropene	ND		0.20	0.090
108-90-7	Chlorobenzene	ND		0.20	0.025
75-01-4	Vinyl chloride	ND		0.020	0.013
135-98-8	sec-Butylbenzene	ND		1.0	0.17
74-95-3	Dibromomethane	ND		0.20	0.062
179601-23-1	m-Xylene & p-Xylene	ND		0.50	0.12
95-47-6	o-Xylene	ND		0.50	0.15
120-82-1	1,2,4-Trichlorobenzene	ND		0.30	0.072
100-42-5	Styrene	ND		0.50	0.19
74-97-5	Chlorobromomethane	ND		0.20	0.025
75-27-4	Dichlorobromomethane	ND		0.20	0.060
541-73-1	1,3-Dichlorobenzene	ND		0.30	0.050
71-43-2	Benzene	ND		0.20	0.030
75-00-3	Chloroethane	ND		0.50	0.096
10061-02-6	trans-1,3-Dichloropropene	ND		0.20	0.092
87-61-6	1,2,3-Trichlorobenzene	ND		0.50	0.15
103-65-1	N-Propylbenzene	ND		0.30	0.091
99-87-6	4-Isopropyltoluene	ND		0.30	0.050
104-51-8	n-Butylbenzene	ND		0.50	0.080
563-58-6	1,1-Dichloropropene	ND		0.20	0.036
156-59-2	cis-1,2-Dichloroethene	ND		0.20	0.055
79-34-5	1,1,2,2-Tetrachloroethane	ND		0.20	0.056
95-63-6	1,2,4-Trimethylbenzene	ND		0.30	0.072
108-88-3	Toluene	ND		0.20	0.050
91-20-3	Naphthalene	ND		1.0	0.22
108-67-8	1,3,5-Trimethylbenzene	ND		0.50	0.15
142-28-9	1,3-Dichloropropane	ND		0.20	0.056
67-66-3	Chloroform	0.030		0.20	0.030
106-43-4	4-Chlorotoluene	ND		0.30	0.050
124-48-1	Chlorodibromomethane	ND		0.20	0.055
75-71-8	Dichlorodifluoromethane	ND		0.40	0.13
79-00-5	1,1,2-Trichloroethane	ND		0.20	0.070

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87927-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070407 Lab Sample ID: 580-87927-3  
 Matrix: Water Lab File ID: 07311922.D  
 Analysis Method: 8260C Date Collected: 07/24/2019 10:10  
 Sample wt/vol: 10 (mL) Date Analyzed: 08/02/2019 00:09  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: DB-VRX ID: 0.25 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 307312 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
98-06-6	tert-Butylbenzene	ND		0.50	0.10
74-87-3	Chloromethane	ND		0.50	0.15
75-09-2	Methylene Chloride	ND		5.0	0.74
75-35-4	1,1-Dichloroethene	ND		0.20	0.10
98-82-8	Isopropylbenzene	ND		1.0	0.19
107-06-2	1,2-Dichloroethane	ND		0.20	0.043
127-18-4	Tetrachloroethene	ND		0.50	0.084
71-55-6	1,1,1-Trichloroethane	ND		0.20	0.025
594-20-7	2,2-Dichloropropane	ND		0.50	0.060
106-93-4	Ethylene Dibromide	ND		0.10	0.025
75-25-2	Bromoform	ND		0.50	0.16
96-12-8	1,2-Dibromo-3-Chloropropane	ND		2.0	0.44
75-69-4	Trichlorofluoromethane	ND		0.50	0.11
79-01-6	Trichloroethene	ND		0.20	0.066
108-86-1	Bromobenzene	ND		0.20	0.035
78-87-5	1,2-Dichloropropane	ND		0.20	0.060
630-20-6	1,1,1,2-Tetrachloroethane	ND		0.30	0.027
100-41-4	Ethylbenzene	ND		0.20	0.030
156-60-5	trans-1,2-Dichloroethene	ND		0.20	0.089
87-68-3	Hexachlorobutadiene	ND		0.50	0.15
75-34-3	1,1-Dichloroethane	ND		0.20	0.025
74-83-9	Bromomethane	ND		0.50	0.16
106-46-7	1,4-Dichlorobenzene	ND		0.30	0.050
1634-04-4	Methyl tert-butyl ether	ND		0.30	0.070

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	103		80-120
2037-26-5	Toluene-d8 (Surr)	97		80-120
98-08-8	Trifluorotoluene (Surr)	88		80-120
1868-53-7	Dibromofluoromethane (Surr)	109		80-120
17060-07-0	1,2-Dichloroethane-d4 (Surr)	119		80-120

*mw 82949*



FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87927-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070404

Lab Sample ID: 580-87927-4

Matrix: Water

Lab File ID: 07262019\_019.D

Analysis Method: 8260C

Date Collected: 07/23/2019 14:00

Sample wt/vol: 10(mL)

Date Analyzed: 07/26/2019 22:09

Soil Aliquot Vol: \_\_\_\_\_

Dilution Factor: 1

Soil Extract Vol.: \_\_\_\_\_

GC Column: 624SIL-MS ID: 0.25 (mm)

% Moisture: \_\_\_\_\_

Level: (low/med) Low

Analysis Batch No.: 306774

Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
95-50-1	1,2-Dichlorobenzene	ND		0.30	0.050
95-49-8	2-Chlorotoluene	ND		0.50	0.12
96-18-4	1,2,3-Trichloropropane	ND		0.20	0.050
56-23-5	Carbon tetrachloride	ND		0.20	0.025
10061-01-5	cis-1,3-Dichloropropene	ND		0.20	0.090
108-90-7	Chlorobenzene	ND		0.20	0.025
75-01-4	Vinyl chloride	ND		0.020	0.013
135-98-8	sec-Butylbenzene	ND		1.0	0.17
74-95-3	Dibromomethane	ND		0.20	0.062
179601-23-1	m-Xylene & p-Xylene	ND		0.50	0.12
95-47-6	o-Xylene	ND		0.50	0.15
120-82-1	1,2,4-Trichlorobenzene	ND		0.30	0.072
100-42-5	Styrene	ND		0.50	0.19
74-97-5	Chlorobromomethane	ND		0.20	0.025
75-27-4	Dichlorobromomethane	ND		0.20	0.060
541-73-1	1,3-Dichlorobenzene	ND		0.30	0.050
71-43-2	Benzene	0.14	J	0.20	0.030
75-00-3	Chloroethane	ND		0.50	0.096
10061-02-6	trans-1,3-Dichloropropene	ND		0.20	0.092
87-61-6	1,2,3-Trichlorobenzene	ND		0.50	0.15
103-65-1	N-Propylbenzene	ND		0.30	0.091
99-87-6	4-Isopropyltoluene	ND		0.30	0.050
104-51-8	n-Butylbenzene	ND		0.50	0.080
563-58-6	1,1-Dichloropropene	ND		0.20	0.036
156-59-2	cis-1,2-Dichloroethene	ND		0.20	0.055
79-34-5	1,1,2,2-Tetrachloroethane	ND		0.20	0.056
95-63-6	1,2,4-Trimethylbenzene	ND		0.30	0.072
108-88-3	Toluene	ND		0.20	0.050
91-20-3	Naphthalene	ND		1.0	0.22
108-67-8	1,3,5-Trimethylbenzene	ND		0.50	0.15
142-28-9	1,3-Dichloropropane	ND		0.20	0.056
67-66-3	Chloroform	0.084		0.20	0.030
106-43-4	4-Chlorotoluene	ND		0.30	0.050
124-48-1	Chlorodibromomethane	ND		0.20	0.055
75-71-8	Dichlorodifluoromethane	ND		0.40	0.13
79-00-5	1,1,2-Trichloroethane	ND		0.20	0.070



FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87927-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070404

Lab Sample ID: 580-87927-4

Matrix: Water

Lab File ID: 07262019\_019.D

Analysis Method: 8260C

Date Collected: 07/23/2019 14:00

Sample wt/vol: 10 (mL)

Date Analyzed: 07/26/2019 22:09

Soil Aliquot Vol: \_\_\_\_\_

Dilution Factor: 1

Soil Extract Vol.: \_\_\_\_\_

GC Column: 624SIL-MS ID: 0.25 (mm)

% Moisture: \_\_\_\_\_

Level: (low/med) Low

Analysis Batch No.: 306774

Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
98-06-6	tert-Butylbenzene	ND		0.50	0.10
74-87-3	Chloromethane	ND		0.50	0.15
75-09-2	Methylene Chloride	ND		5.0	0.74
75-35-4	1,1-Dichloroethene	ND		0.20	0.10
98-82-8	Isopropylbenzene	ND		1.0	0.19
107-06-2	1,2-Dichloroethane	ND		0.20	0.043
127-18-4	Tetrachloroethene	ND		0.50	0.084
71-55-6	1,1,1-Trichloroethane	ND		0.20	0.025
594-20-7	2,2-Dichloropropane	ND		0.50	0.060
106-93-4	Ethylene Dibromide	ND		0.10	0.025
75-25-2	Bromoform	ND		0.50	0.16
96-12-8	1,2-Dibromo-3-Chloropropane	ND		2.0	0.44
75-69-4	Trichlorofluoromethane	ND		0.50	0.11
79-01-6	Trichloroethene	ND		0.20	0.066
108-86-1	Bromobenzene	ND		0.20	0.035
78-87-5	1,2-Dichloropropane	ND		0.20	0.060
630-20-6	1,1,1,2-Tetrachloroethane	ND		0.30	0.027
100-41-4	Ethylbenzene	ND		0.20	0.030
156-60-5	trans-1,2-Dichloroethene	ND		0.20	0.089
87-68-3	Hexachlorobutadiene	ND		0.50	0.15
75-34-3	1,1-Dichloroethane	ND		0.20	0.025
74-83-9	Bromomethane	ND		0.50	0.16
106-46-7	1,4-Dichlorobenzene	ND		0.30	0.050
1634-04-4	Methyl tert-butyl ether	ND		0.30	0.070

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	89		80-120
2037-26-5	Toluene-d8 (Surr)	98		80-120
98-08-8	Trifluorotoluene (Surr)	104		80-120
1868-53-7	Dibromofluoromethane (Surr)	100		80-120
17060-07-0	1,2-Dichloroethane-d4 (Surr)	109		80-120

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FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87927-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070405 Lab Sample ID: 580-87927-5  
 Matrix: Water Lab File ID: 07262019\_020.D  
 Analysis Method: 8260C Date Collected: 07/23/2019 16:42  
 Sample wt/vol: 10(mL) Date Analyzed: 07/26/2019 22:35  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: 624SIL-MS ID: 0.25(mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 306774 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
95-50-1	1,2-Dichlorobenzene	ND		0.30	0.050
95-49-8	2-Chlorotoluene	ND		0.50	0.12
96-18-4	1,2,3-Trichloropropane	ND		0.20	0.050
56-23-5	Carbon tetrachloride	ND		0.20	0.025
10061-01-5	cis-1,3-Dichloropropene	ND		0.20	0.090
108-90-7	Chlorobenzene	ND		0.20	0.025
75-01-4	Vinyl chloride	ND	fm	0.020	0.013
135-98-8	sec-Butylbenzene	ND		1.0	0.17
74-95-3	Dibromomethane	ND		0.20	0.062
179601-23-1	m-Xylene & p-Xylene	ND		0.50	0.12
95-47-6	o-Xylene	ND		0.50	0.15
120-82-1	1,2,4-Trichlorobenzene	ND		0.30	0.072
100-42-5	Styrene	ND		0.50	0.19
74-97-5	Chlorobromomethane	ND		0.20	0.025
75-27-4	Dichlorobromomethane	ND		0.20	0.060
541-73-1	1,3-Dichlorobenzene	ND		0.30	0.050
71-43-2	Benzene	ND		0.20	0.030
75-00-3	Chloroethane	ND		0.50	0.096
10061-02-6	trans-1,3-Dichloropropene	ND		0.20	0.092
87-61-6	1,2,3-Trichlorobenzene	ND		0.50	0.15
103-65-1	N-Propylbenzene	ND		0.30	0.091
99-87-6	4-Isopropyltoluene	ND		0.30	0.050
104-51-8	n-Butylbenzene	ND		0.50	0.080
563-58-6	1,1-Dichloropropene	ND		0.20	0.036
156-59-2	cis-1,2-Dichloroethene	ND		0.20	0.055
79-34-5	1,1,2,2-Tetrachloroethane	ND		0.20	0.056
95-63-6	1,2,4-Trimethylbenzene	ND		0.30	0.072
108-88-3	Toluene	ND		0.20	0.050
91-20-3	Naphthalene	ND		1.0	0.22
108-67-8	1,3,5-Trimethylbenzene	ND		0.50	0.15
142-28-9	1,3-Dichloropropane	ND		0.20	0.056
67-66-3	Chloroform	ND		0.20	0.030
106-43-4	4-Chlorotoluene	ND		0.30	0.050
124-48-1	Chlorodibromomethane	ND		0.20	0.055
75-71-8	Dichlorodifluoromethane	ND		0.40	0.13
79-00-5	1,1,2-Trichloroethane	ND		0.20	0.070

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87927-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070405

Lab Sample ID: 580-87927-5

Matrix: Water

Lab File ID: 07262019\_020.D

Analysis Method: 8260C

Date Collected: 07/23/2019 16:42

Sample wt/vol: 10 (mL)

Date Analyzed: 07/26/2019 22:35

Soil Aliquot Vol: \_\_\_\_\_

Dilution Factor: 1

Soil Extract Vol.: \_\_\_\_\_

GC Column: 624SIL-MS ID: 0.25 (mm)

% Moisture: \_\_\_\_\_

Level: (low/med) Low

Analysis Batch No.: 306774

Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
98-06-6	tert-Butylbenzene	ND		0.50	0.10
74-87-3	Chloromethane	ND	<i>Am</i>	0.50	0.15
75-09-2	Methylene Chloride	ND		5.0	0.74
75-35-4	1,1-Dichloroethene	ND		0.20	0.10
98-82-8	Isopropylbenzene	ND		1.0	0.19
107-06-2	1,2-Dichloroethane	ND		0.20	0.043
127-18-4	Tetrachloroethene	ND		0.50	0.084
71-55-6	1,1,1-Trichloroethane	ND		0.20	0.025
594-20-7	2,2-Dichloropropane	ND		0.50	0.060
106-93-4	Ethylene Dibromide	ND		0.10	0.025
75-25-2	Bromoform	ND		0.50	0.16
96-12-8	1,2-Dibromo-3-Chloropropane	ND		2.0	0.44
75-69-4	Trichlorofluoromethane	ND		0.50	0.11
79-01-6	Trichloroethene	ND		0.20	0.066
108-86-1	Bromobenzene	ND		0.20	0.035
78-87-5	1,2-Dichloropropane	ND		0.20	0.060
630-20-6	1,1,1,2-Tetrachloroethane	ND		0.30	0.027
100-41-4	Ethylbenzene	ND		0.20	0.030
156-60-5	trans-1,2-Dichloroethene	ND		0.20	0.089
87-68-3	Hexachlorobutadiene	ND		0.50	0.15
75-34-3	1,1-Dichloroethane	ND		0.20	0.025
74-83-9	Bromomethane	ND	<i>Am</i>	0.50	0.16
106-46-7	1,4-Dichlorobenzene	ND		0.30	0.050
1634-04-4	Methyl tert-butyl ether	ND		0.30	0.070

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	87		80-120
2037-26-5	Toluene-d8 (Surr)	99		80-120
98-08-8	Trifluorotoluene (Surr)	110		80-120
1868-53-7	Dibromofluoromethane (Surr)	100		80-120
17060-07-0	1,2-Dichloroethane-d4 (Surr)	107		80-120

*mw 8/29/19*

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87927-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070406 Lab Sample ID: 580-87927-6  
 Matrix: Water Lab File ID: 07262019\_021.D  
 Analysis Method: 8260C Date Collected: 07/23/2019 18:41  
 Sample wt/vol: 10(mL) Date Analyzed: 07/26/2019 23:02  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: 624SIL-MS ID: 0.25(mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 306774 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
95-50-1	1,2-Dichlorobenzene	ND		0.30	0.050
95-49-8	2-Chlorotoluene	ND		0.50	0.12
96-18-4	1,2,3-Trichloropropane	ND		0.20	0.050
56-23-5	Carbon tetrachloride	ND		0.20	0.025
10061-01-5	cis-1,3-Dichloropropene	ND		0.20	0.090
108-90-7	Chlorobenzene	ND		0.20	0.025
75-01-4	Vinyl chloride	ND		0.020	0.013
135-98-8	sec-Butylbenzene	ND		1.0	0.17
74-95-3	Dibromomethane	ND		0.20	0.062
179601-23-1	m-Xylene & p-Xylene	ND		0.50	0.12
95-47-6	o-Xylene	ND		0.50	0.15
120-82-1	1,2,4-Trichlorobenzene	ND		0.30	0.072
100-42-5	Styrene	ND		0.50	0.19
74-97-5	Chlorobromomethane	ND		0.20	0.025
75-27-4	Dichlorobromomethane	ND		0.20	0.060
541-73-1	1,3-Dichlorobenzene	ND		0.30	0.050
71-43-2	Benzene	ND		0.20	0.030
75-00-3	Chloroethane	ND		0.50	0.096
10061-02-6	trans-1,3-Dichloropropene	ND		0.20	0.092
87-61-6	1,2,3-Trichlorobenzene	ND		0.50	0.15
103-65-1	N-Propylbenzene	ND		0.30	0.091
99-87-6	4-Isopropyltoluene	ND		0.30	0.050
104-51-8	n-Butylbenzene	ND		0.50	0.080
563-58-6	1,1-Dichloropropene	ND		0.20	0.036
156-59-2	cis-1,2-Dichloroethene	ND		0.20	0.055
79-34-5	1,1,2,2-Tetrachloroethane	ND		0.20	0.056
95-63-6	1,2,4-Trimethylbenzene	ND		0.30	0.072
108-88-3	Toluene	0.10	J	0.20	0.050
91-20-3	Naphthalene	ND		1.0	0.22
108-67-8	1,3,5-Trimethylbenzene	ND		0.50	0.15
142-28-9	1,3-Dichloropropane	ND		0.20	0.056
67-66-3	Chloroform	0.057	J	0.20	0.030
106-43-4	4-Chlorotoluene	ND		0.30	0.050
124-48-1	Chlorodibromomethane	ND		0.20	0.055
75-71-8	Dichlorodifluoromethane	ND		0.40	0.13
79-00-5	1,1,2-Trichloroethane	ND		0.20	0.070

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87927-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070406

Lab Sample ID: 580-87927-6

Matrix: Water

Lab File ID: 07262019\_021.D

Analysis Method: 8260C

Date Collected: 07/23/2019 18:41

Sample wt/vol: 10 (mL)

Date Analyzed: 07/26/2019 23:02

Soil Aliquot Vol: \_\_\_\_\_

Dilution Factor: 1

Soil Extract Vol.: \_\_\_\_\_

GC Column: 624SIL-MS ID: 0.25 (mm)

% Moisture: \_\_\_\_\_

Level: (low/med) Low

Analysis Batch No.: 306774

Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
98-06-6	tert-Butylbenzene	ND		0.50	0.10
74-87-3	Chloromethane	ND		0.50	0.15
75-09-2	Methylene Chloride	ND		5.0	0.74
75-35-4	1,1-Dichloroethene	ND		0.20	0.10
98-82-8	Isopropylbenzene	ND		1.0	0.19
107-06-2	1,2-Dichloroethane	ND		0.20	0.043
127-18-4	Tetrachloroethene	ND		0.50	0.084
71-55-6	1,1,1-Trichloroethane	ND		0.20	0.025
594-20-7	2,2-Dichloropropane	ND		0.50	0.060
106-93-4	Ethylene Dibromide	ND		0.10	0.025
75-25-2	Bromoform	ND		0.50	0.16
96-12-8	1,2-Dibromo-3-Chloropropane	ND		2.0	0.44
75-69-4	Trichlorofluoromethane	ND		0.50	0.11
79-01-6	Trichloroethene	ND		0.20	0.066
108-86-1	Bromobenzene	ND		0.20	0.035
78-87-5	1,2-Dichloropropane	ND		0.20	0.060
630-20-6	1,1,1,2-Tetrachloroethane	ND		0.30	0.027
100-41-4	Ethylbenzene	ND		0.20	0.030
156-60-5	trans-1,2-Dichloroethene	ND		0.20	0.089
87-68-3	Hexachlorobutadiene	ND		0.50	0.15
75-34-3	1,1-Dichloroethane	ND		0.20	0.025
74-83-9	Bromomethane	ND		0.50	0.16
106-46-7	1,4-Dichlorobenzene	ND		0.30	0.050
1634-04-4	Methyl tert-butyl ether	ND		0.30	0.070

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	89		80-120
2037-26-5	Toluene-d8 (Surr)	100		80-120
98-08-8	Trifluorotoluene (Surr)	108		80-120
1868-53-7	Dibromofluoromethane (Surr)	104		80-120
17060-07-0	1,2-Dichloroethane-d4 (Surr)	106		80-120

*mw 87914*

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87927-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070408 Lab Sample ID: 580-87927-7  
 Matrix: Water Lab File ID: 07311923.D  
 Analysis Method: 8260C Date Collected: 07/24/2019 12:10  
 Sample wt/vol: 10(mL) Date Analyzed: 08/02/2019 00:36  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: DB-VRX ID: 0.25 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 307312 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
95-50-1	1,2-Dichlorobenzene	ND		0.30	0.050
95-49-8	2-Chlorotoluene	ND		0.50	0.12
96-18-4	1,2,3-Trichloropropane	ND		0.20	0.050
56-23-5	Carbon tetrachloride	ND		0.20	0.025
10061-01-5	cis-1,3-Dichloropropene	ND		0.20	0.090
108-90-7	Chlorobenzene	ND		0.20	0.025
75-01-4	Vinyl chloride	ND	<i>7mm</i>	0.020	0.013
135-98-8	sec-Butylbenzene	ND		1.0	0.17
74-95-3	Dibromomethane	ND		0.20	0.062
179601-23-1	m-Xylene & p-Xylene	ND		0.50	0.12
95-47-6	o-Xylene	ND		0.50	0.15
120-82-1	1,2,4-Trichlorobenzene	ND		0.30	0.072
100-42-5	Styrene	ND		0.50	0.19
74-97-5	Chlorobromomethane	ND		0.20	0.025
75-27-4	Dichlorobromomethane	ND		0.20	0.060
541-73-1	1,3-Dichlorobenzene	ND		0.30	0.050
71-43-2	Benzene	ND		0.20	0.030
75-00-3	Chloroethane	ND		0.50	0.096
10061-02-6	trans-1,3-Dichloropropene	ND		0.20	0.092
87-61-6	1,2,3-Trichlorobenzene	ND		0.50	0.15
103-65-1	N-Propylbenzene	ND		0.30	0.091
99-87-6	4-Isopropyltoluene	ND		0.30	0.050
104-51-8	n-Butylbenzene	ND		0.50	0.080
563-58-6	1,1-Dichloropropene	ND		0.20	0.036
156-59-2	cis-1,2-Dichloroethene	ND		0.20	0.055
79-34-5	1,1,2,2-Tetrachloroethane	ND		0.20	0.056
95-63-6	1,2,4-Trimethylbenzene	ND		0.30	0.072
91-20-3	Naphthalene	ND		1.0	0.22
108-67-8	1,3,5-Trimethylbenzene	ND		0.50	0.15
142-28-9	1,3-Dichloropropane	ND		0.20	0.056
67-66-3	Chloroform	ND		0.20	0.030
106-43-4	4-Chlorotoluene	ND		0.30	0.050
124-48-1	Chlorodibromomethane	ND		0.20	0.055
75-71-8	Dichlorodifluoromethane	ND	<i>7mm</i>	0.40	0.13
79-00-5	1,1,2-Trichloroethane	ND		0.20	0.070
98-06-6	tert-Butylbenzene	ND		0.50	0.10



FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87927-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070408 Lab Sample ID: 580-87927-7  
 Matrix: Water Lab File ID: 07311923.D  
 Analysis Method: 8260C Date Collected: 07/24/2019 12:10  
 Sample wt/vol: 10(mL) Date Analyzed: 08/02/2019 00:36  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: DB-VRX ID: 0.25 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 307312 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
74-87-3	Chloromethane	ND		0.50	0.15
75-09-2	Methylene Chloride	ND		5.0	0.74
75-35-4	1,1-Dichloroethene	ND		0.20	0.10
98-82-8	Isopropylbenzene	ND		1.0	0.19
107-06-2	1,2-Dichloroethane	ND		0.20	0.043
127-18-4	Tetrachloroethene	ND		0.50	0.084
71-55-6	1,1,1-Trichloroethane	ND		0.20	0.025
594-20-7	2,2-Dichloropropane	ND		0.50	0.060
106-93-4	Ethylene Dibromide	ND		0.10	0.025
75-25-2	Bromoform	ND		0.50	0.16
96-12-8	1,2-Dibromo-3-Chloropropane	ND		2.0	0.44
75-69-4	Trichlorofluoromethane	ND		0.50	0.11
79-01-6	Trichloroethene	ND		0.20	0.066
108-86-1	Bromobenzene	ND		0.20	0.035
78-87-5	1,2-Dichloropropane	ND		0.20	0.060
630-20-6	1,1,1,2-Tetrachloroethane	ND		0.30	0.027
100-41-4	Ethylbenzene	ND		0.20	0.030
156-60-5	trans-1,2-Dichloroethene	ND		0.20	0.089
87-68-3	Hexachlorobutadiene	ND		0.50	0.15
75-34-3	1,1-Dichloroethane	ND		0.20	0.025
74-83-9	Bromomethane	ND		0.50	0.16
106-46-7	1,4-Dichlorobenzene	ND		0.30	0.050
1634-04-4	Methyl tert-butyl ether	ND		0.30	0.070

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	104		80-120
2037-26-5	Toluene-d8 (Surr)	96		80-120
98-08-8	Trifluorotoluene (Surr)	86		80-120
1868-53-7	Dibromofluoromethane (Surr)	109		80-120
17060-07-0	1,2-Dichloroethane-d4 (Surr)	124	X	80-120

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87927-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070408 RA Lab Sample ID: 580-87927-7 RA  
 Matrix: Water Lab File ID: 08062019\_011.D  
 Analysis Method: 8260C Date Collected: 07/24/2019 12:10  
 Sample wt/vol: 10 (mL) Date Analyzed: 08/06/2019 12:51  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: 624SIL-MS ID: 0.25 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 307590 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
108-88-3	Toluene	<del>0.13</del> <u>0.20</u>	<u>J</u>	<u>0.20</u>	0.050

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	85		80-120
2037-26-5	Toluene-d8 (Surr)	101		80-120
98-08-8	Trifluorotoluene (Surr)	112		80-120
1868-53-7	Dibromofluoromethane (Surr)	110		80-120
17060-07-0	1,2-Dichloroethane-d4 (Surr)	107		80-120

*mw 8-24-19*



FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87927-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070403

Lab Sample ID: 580-87927-8

Matrix: Water

Lab File ID: 07262019\_022.D

Analysis Method: 8260C

Date Collected: 07/23/2019 12:22

Sample wt/vol: 10 (mL)

Date Analyzed: 07/26/2019 23:28

Soil Aliquot Vol: \_\_\_\_\_

Dilution Factor: 1

Soil Extract Vol.: \_\_\_\_\_

GC Column: 624SIL-MS ID: 0.25 (mm)

% Moisture: \_\_\_\_\_

Level: (low/med) Low

Analysis Batch No.: 306774

Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
95-50-1	1,2-Dichlorobenzene	ND		0.30	0.050
95-49-8	2-Chlorotoluene	ND		0.50	0.12
96-18-4	1,2,3-Trichloropropane	ND		0.20	0.050
56-23-5	Carbon tetrachloride	ND		0.20	0.025
10061-01-5	cis-1,3-Dichloropropene	ND		0.20	0.090
108-90-7	Chlorobenzene	ND		0.20	0.025
75-01-4	Vinyl chloride	ND		0.020	0.013
135-98-8	sec-Butylbenzene	ND		1.0	0.17
74-95-3	Dibromomethane	ND		0.20	0.062
179601-23-1	m-Xylene & p-Xylene	ND		0.50	0.12
95-47-6	o-Xylene	ND		0.50	0.15
120-82-1	1,2,4-Trichlorobenzene	ND		0.30	0.072
100-42-5	Styrene	ND		0.50	0.19
74-97-5	Chlorobromomethane	ND		0.20	0.025
75-27-4	Dichlorobromomethane	ND		0.20	0.060
541-73-1	1,3-Dichlorobenzene	ND		0.30	0.050
71-43-2	Benzene	ND		0.20	0.030
75-00-3	Chloroethane	ND		0.50	0.096
10061-02-6	trans-1,3-Dichloropropene	ND		0.20	0.092
87-61-6	1,2,3-Trichlorobenzene	ND		0.50	0.15
103-65-1	N-Propylbenzene	ND		0.30	0.091
99-87-6	4-Isopropyltoluene	ND		0.30	0.050
104-51-8	n-Butylbenzene	ND		0.50	0.080
563-58-6	1,1-Dichloropropene	ND		0.20	0.036
156-59-2	cis-1,2-Dichloroethene	ND		0.20	0.055
79-34-5	1,1,2,2-Tetrachloroethane	ND		0.20	0.056
95-63-6	1,2,4-Trimethylbenzene	ND		0.30	0.072
108-88-3	Toluene	ND		0.20	0.050
91-20-3	Naphthalene	ND		1.0	0.22
108-67-8	1,3,5-Trimethylbenzene	ND		0.50	0.15
142-28-9	1,3-Dichloropropane	ND		0.20	0.056
67-66-3	Chloroform	ND		0.20	0.030
106-43-4	4-Chlorotoluene	ND		0.30	0.050
124-48-1	Chlorodibromomethane	ND		0.20	0.055
75-71-8	Dichlorodifluoromethane	ND		0.40	0.13
79-00-5	1,1,2-Trichloroethane	ND		0.20	0.070

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87927-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070403 Lab Sample ID: 580-87927-8  
 Matrix: Water Lab File ID: 07262019\_022.D  
 Analysis Method: 8260C Date Collected: 07/23/2019 12:22  
 Sample wt/vol: 10 (mL) Date Analyzed: 07/26/2019 23:28  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: 624SIL-MS ID: 0.25 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 306774 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
98-06-6	tert-Butylbenzene	ND		0.50	0.10
74-87-3	Chloromethane	ND		0.50	0.15
75-09-2	Methylene Chloride	ND		5.0	0.74
75-35-4	1,1-Dichloroethene	ND		0.20	0.10
98-82-8	Isopropylbenzene	ND		1.0	0.19
107-06-2	1,2-Dichloroethane	ND		0.20	0.043
127-18-4	Tetrachloroethene	ND		0.50	0.084
71-55-6	1,1,1-Trichloroethane	ND		0.20	0.025
594-20-7	2,2-Dichloropropane	ND		0.50	0.060
106-93-4	Ethylene Dibromide	ND		0.10	0.025
75-25-2	Bromoform	ND		0.50	0.16
96-12-8	1,2-Dibromo-3-Chloropropane	ND		2.0	0.44
75-69-4	Trichlorofluoromethane	ND		0.50	0.11
79-01-6	Trichloroethene	ND		0.20	0.066
108-86-1	Bromobenzene	ND		0.20	0.035
78-87-5	1,2-Dichloropropane	ND		0.20	0.060
630-20-6	1,1,1,2-Tetrachloroethane	ND		0.30	0.027
100-41-4	Ethylbenzene	ND		0.20	0.030
156-60-5	trans-1,2-Dichloroethene	ND		0.20	0.089
87-68-3	Hexachlorobutadiene	ND		0.50	0.15
75-34-3	1,1-Dichloroethane	ND		0.20	0.025
74-83-9	Bromomethane	ND		0.50	0.16
106-46-7	1,4-Dichlorobenzene	ND		0.30	0.050
1634-04-4	Methyl tert-butyl ether	ND		0.30	0.070

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	86		80-120
2037-26-5	Toluene-d8 (Surr)	100		80-120
98-08-8	Trifluorotoluene (Surr)	111		80-120
1868-53-7	Dibromofluoromethane (Surr)	104		80-120
17060-07-0	1,2-Dichloroethane-d4 (Surr)	108		80-120

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-87927-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070611 Lab Sample ID: 580-87927-9  
 Matrix: Water Lab File ID: 07311924.D  
 Analysis Method: 8260C Date Collected: 07/24/2019 00:01  
 Sample wt/vol: 10 (mL) Date Analyzed: 08/02/2019 01:02  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: DB-VRX ID: 0.25 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 307312 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
95-50-1	1,2-Dichlorobenzene	ND		0.30	0.050
95-49-8	2-Chlorotoluene	ND		0.50	0.12
96-18-4	1,2,3-Trichloropropane	ND		0.20	0.050
56-23-5	Carbon tetrachloride	ND		0.20	0.025
10061-01-5	cis-1,3-Dichloropropene	ND		0.20	0.090
108-90-7	Chlorobenzene	ND		0.20	0.025
75-01-4	Vinyl chloride	ND	<i>me</i>	0.020	0.013
135-98-8	sec-Butylbenzene	ND		1.0	0.17
74-95-3	Dibromomethane	ND		0.20	0.062
179601-23-1	m-Xylene & p-Xylene	ND		0.50	0.12
95-47-6	o-Xylene	ND		0.50	0.15
120-82-1	1,2,4-Trichlorobenzene	ND		0.30	0.072
100-42-5	Styrene	ND		0.50	0.19
74-97-5	Chlorobromomethane	ND		0.20	0.025
75-27-4	Dichlorobromomethane	ND		0.20	0.060
541-73-1	1,3-Dichlorobenzene	ND		0.30	0.050
71-43-2	Benzene	ND		0.20	0.030
75-00-3	Chloroethane	ND		0.50	0.096
10061-02-6	trans-1,3-Dichloropropene	ND		0.20	0.092
87-61-6	1,2,3-Trichlorobenzene	ND		0.50	0.15
103-65-1	N-Propylbenzene	ND		0.30	0.091
99-87-6	4-Isopropyltoluene	ND		0.30	0.050
104-51-8	n-Butylbenzene	ND		0.50	0.080
563-58-6	1,1-Dichloropropene	ND		0.20	0.036
156-59-2	cis-1,2-Dichloroethene	ND		0.20	0.055
79-34-5	1,1,2,2-Tetrachloroethane	ND		0.20	0.056
95-63-6	1,2,4-Trimethylbenzene	ND		0.30	0.072
108-88-3	Toluene	0.053	<i>JQ</i>	0.20	0.050
91-20-3	Naphthalene	ND		1.0	0.22
108-67-8	1,3,5-Trimethylbenzene	ND		0.50	0.15
142-28-9	1,3-Dichloropropane	ND		0.20	0.056
67-66-3	Chloroform	0.25	<i>JH</i>	0.20	0.030
106-43-4	4-Chlorotoluene	ND		0.30	0.050
124-48-1	Chlorodibromomethane	ND		0.20	0.055
75-71-8	Dichlorodifluoromethane	ND	<i>me</i>	0.40	0.13
79-00-5	1,1,2-Trichloroethane	ND		0.20	0.070



FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-87927-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070611

Lab Sample ID: 580-87927-9

Matrix: Water

Lab File ID: 07311924.D

Analysis Method: 8260C

Date Collected: 07/24/2019 00:01

Sample wt/vol: 10(mL)

Date Analyzed: 08/02/2019 01:02

Soil Aliquot Vol: \_\_\_\_\_

Dilution Factor: 1

Soil Extract Vol.: \_\_\_\_\_

GC Column: DB-VRX ID: 0.25 (mm)

% Moisture: \_\_\_\_\_

Level: (low/med) Low

Analysis Batch No.: 307312

Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
98-06-6	tert-Butylbenzene	ND		0.50	0.10
74-87-3	Chloromethane	ND		0.50	0.15
75-09-2	Methylene Chloride	ND		5.0	0.74
75-35-4	1,1-Dichloroethene	ND		0.20	0.10
98-82-8	Isopropylbenzene	ND		1.0	0.19
107-06-2	1,2-Dichloroethane	ND		0.20	0.043
127-18-4	Tetrachloroethene	ND		0.50	0.084
71-55-6	1,1,1-Trichloroethane	ND		0.20	0.025
594-20-7	2,2-Dichloropropane	ND		0.50	0.060
106-93-4	Ethylene Dibromide	ND		0.10	0.025
75-25-2	Bromoform	ND		0.50	0.16
96-12-8	1,2-Dibromo-3-Chloropropane	ND		2.0	0.44
75-69-4	Trichlorofluoromethane	ND		0.50	0.11
79-01-6	Trichloroethene	ND		0.20	0.066
108-86-1	Bromobenzene	ND		0.20	0.035
78-87-5	1,2-Dichloropropane	ND		0.20	0.060
630-20-6	1,1,1,2-Tetrachloroethane	ND		0.30	0.027
100-41-4	Ethylbenzene	ND		0.20	0.030
156-60-5	trans-1,2-Dichloroethene	ND		0.20	0.089
87-68-3	Hexachlorobutadiene	ND		0.50	0.15
75-34-3	1,1-Dichloroethane	ND		0.20	0.025
74-83-9	Bromomethane	ND		0.50	0.16
106-46-7	1,4-Dichlorobenzene	ND		0.30	0.050
1634-04-4	Methyl tert-butyl ether	ND		0.30	0.070

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	102		80-120
2037-26-5	Toluene-d8 (Surr)	96		80-120
98-08-8	Trifluorotoluene (Surr)	91		80-120
1868-53-7	Dibromofluoromethane (Surr)	109		80-120
17060-07-0	1,2-Dichloroethane-d4 (Surr)	119		80-120

*MW 8-29-19*



**MEMORANDUM**

DATE: August 13, 2019

TO: Seth Wing, START-IV Project Manager, E & E, Seattle, WA

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington *MW*

SUBJ: **Organic Data Quality Assurance Review, May Creek Removal Action Site, Renton, Washington**

REF: TO: TO-68HE0718F0470 PAN: 1004530.0470 001.01

The data quality assurance review of seven soil samples collected from the May Creek Removal Action site located in Renton, Washington, has been completed. Analysis for Extended Diesel Range Total Petroleum Hydrocarbons (Ecology Method NWTPH-Dx) was performed by Test America, Inc., Spokane, Washington. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Manual Process (S2B/4VM).

The samples were numbered:

19070156	19070157	19070158	19070159	19070160
19070161	19070162			

**Data Qualifications:**

**1. Sample Holding Times: Acceptable.**

The samples were maintained at  $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ . The samples were collected on July 25, 2019, extracted on July 31, 2019, and analyzed by July 31, 2019, therefore meeting QC criteria of less than 14 days between collection and extraction for soil samples and less than 40 days between extraction and analysis.

**2. Initial Calibration: Acceptable.**

Calculations were verified as correct. All relative percent differences (RPDs) were within the laboratory control limits.

**3. Continuing Calibration: Acceptable.**

Calculations were verified as correct. All percent differences (%Ds) were within the laboratory control limits.

**4. Blanks: Acceptable.**

A method blank was analyzed for each extraction batch for each matrix and analysis system.

Diesel- and motor oil-range TPHs were not detected in the method blank.

**5. System Monitoring Compounds (SMC): Satisfactory.**

All recoveries of the SMCs were greater than 10% and within QC limits except when interfered with by the sample matrix and/or diluted; no actions were taken based on these outliers.

**6. Matrix Spike (MS) and MS Duplicate (MSD): Acceptable.**

MS and MSD results were within QC limits and/or were not applicable due to the sample concentration more than four times the spiked amount.

**7. Blank Spike (BS) and BS Duplicate (BSD): Acceptable.**

BS and BSD recoveries were within QC limits.

**8. Duplicates: Acceptable.**

All duplicate and spike duplicate results were within QC limits except when not applicable as noted in the MS/MSD section above.

**9. Quantitation and Quantitation Limits: Acceptable.**

Sample concentrations were correctly calculated.

**10. Laboratory Contact: Not Required.**

No laboratory contact was required.

**11. Overall Assessment of Data for Use**

A total of 14 results were validated in this data memorandum. No sample results were qualified as estimated quantities (J) based on duplicate precision outliers, spike accuracy outliers, holding time outliers, incorrect sample containers, or sample temperature outliers. No sample results were rejected (R).

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the analytical method(s), the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, and/or the Office of Emergency and Remedial Response Publication "National Functional Guidelines for Superfund Organic Methods Data Review, January 2017". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

H - The sample result is biased high.

J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

- K - The bias of the sample is not known.
- L - The sample result is biased low.
- Q - Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.
- R - The data is rejected and unusable. The analyte may or may not be present in the sample.
- U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.

FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Spokane Job No.: 580-87952-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070156 Lab Sample ID: 580-87952-1  
 Matrix: Solid Lab File ID: 590-0005789-012.D  
 Analysis Method: NWTPH-Dx Date Collected: 07/25/2019 15:16  
 Extraction Method: 3550C Date Extracted: 07/31/2019 08:32  
 Sample wt/vol: 15.07(g) Date Analyzed: 07/31/2019 13:24  
 Con. Extract Vol.: 5(mL) Dilution Factor: 1  
 Injection Volume: 2(uL) GC Column: ZB-1HT B ID: 0.25(mm)  
 % Moisture: 15.3 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 23309 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00258	Diesel Range Organics (DRO) (C10-C25)	46		12	4.9
STL00383	Residual Range Organics (RRO) (C25-C36)	290		29	5.9

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	106		50-150
93952-07-9	n-Triacontane-d62	117		50-150

*MW 8-13-19*



FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Spokane Job No.: 580-87952-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070157 Lab Sample ID: 580-87952-2  
 Matrix: Solid Lab File ID: 590-0005789-014.D  
 Analysis Method: NWTPH-Dx Date Collected: 07/25/2019 15:20  
 Extraction Method: 3550C Date Extracted: 07/31/2019 08:32  
 Sample wt/vol: 15.19(g) Date Analyzed: 07/31/2019 14:05  
 Con. Extract Vol.: 5(mL) Dilution Factor: 5  
 Injection Volume: 2(uL) GC Column: ZB-1HT B ID: 0.25 (mm)  
 % Moisture: 19.8 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 23309 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00258	Diesel Range Organics (DRO) (C10-C25)	39	JQ	62	26
STL00383	Residual Range Organics (RRO) (C25-C36)	370	F2	150	31

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	103		50-150
93952-07-9	n-Triacontane-d62	128		50-150

*MW 8-13-19*

FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Spokane Job No.: 580-87952-1  
SDG No.: \_\_\_\_\_  
Client Sample ID: 19070157 Lab Sample ID: 580-87952-2  
Matrix: Solid Lab File ID: 590-0005789-014.D  
Analysis Method: NWTPH-Dx Date Collected: 07/25/2019 15:20  
Extraction Method: 3550C Date Extracted: 07/31/2019 08:32  
Sample wt/vol: 15.19(g) Date Analyzed: 07/31/2019 14:05  
Con. Extract Vol.: 5(mL) Dilution Factor: 5  
Injection Volume: 2(uL) GC Column: ZB-1HT B ID: 0.25 (mm)  
% Moisture: 19.8 GPC Cleanup: (Y/N) N  
Analysis Batch No.: 23310 Units: mg/Kg

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	103		50-150
93952-07-9	n-Triacontane-d62	128		50-150

*MW 8/13/19*

FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Spokane Job No.: 580-87952-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070158 Lab Sample ID: 580-87952-3  
 Matrix: Solid Lab File ID: 590-0005789-017.D  
 Analysis Method: NWTPH-Dx Date Collected: 07/25/2019 15:45  
 Extraction Method: 3550C Date Extracted: 07/31/2019 08:32  
 Sample wt/vol: 15.41(g) Date Analyzed: 07/31/2019 15:07  
 Con. Extract Vol.: 5(mL) Dilution Factor: 20  
 Injection Volume: 2(uL) GC Column: ZB-1HT B ID: 0.25 (mm)  
 % Moisture: 25.7 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 23309 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00258	Diesel Range Organics (DRO) (C10-C25)	160	JQ	260	110
STL00383	Residual Range Organics (RRO) (C25-C36)	2100		660	130

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	122		50-150
93952-07-9	n-Triacontane-d62	224	<i>mu</i>	50-150

*MW 8-13-19*

FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Spokane Job No.: 580-87952-1  
SDG No.: \_\_\_\_\_  
Client Sample ID: 19070159 Lab Sample ID: 580-87952-4  
Matrix: Solid Lab File ID: 590-0005789-018.D  
Analysis Method: NWTPH-Dx Date Collected: 07/25/2019 15:48  
Extraction Method: 3550C Date Extracted: 07/31/2019 08:32  
Sample wt/vol: 15.75(g) Date Analyzed: 07/31/2019 15:28  
Con. Extract Vol.: 5(mL) Dilution Factor: 5  
Injection Volume: 2(uL) GC Column: ZB-1HT B ID: 0.25 (mm)  
% Moisture: 35.1 GPC Cleanup: (Y/N) N  
Analysis Batch No.: 23309 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00258	Diesel Range Organics (DRO) (C10-C25)	570		73	31
STL00383	Residual Range Organics (RRO) (C25-C36)	1400		180	37

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	87		50-150
93952-07-9	n-Triacontane-d62	150		50-150

*MW 813-19*

FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Spokane Job No.: 580-87952-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070160 Lab Sample ID: 580-87952-5  
 Matrix: Solid Lab File ID: 590-0005789-019.D  
 Analysis Method: NWTPH-Dx Date Collected: 07/25/2019 16:02  
 Extraction Method: 3550C Date Extracted: 07/31/2019 08:32  
 Sample wt/vol: 15.31(g) Date Analyzed: 07/31/2019 15:49  
 Con. Extract Vol.: 5(mL) Dilution Factor: 10  
 Injection Volume: 2(uL) GC Column: ZB-1HT B ID: 0.25(mm)  
 % Moisture: 33.0 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 23309 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00258	Diesel Range Organics (DRO) (C10-C25)	300		150	61
STL00383	Residual Range Organics (RRO) (C25-C36)	2500		370	73

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	90		50-150
93952-07-9	n-Triacontane-d62	194	<i>X</i>	50-150

*MW 8-13-19*

FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Spokane Job No.: 580-87952-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070161 Lab Sample ID: 580-87952-6  
 Matrix: Solid Lab File ID: 590-0005789-020.D  
 Analysis Method: NWTPH-Dx Date Collected: 07/25/2019 16:21  
 Extraction Method: 3550C Date Extracted: 07/31/2019 08:32  
 Sample wt/vol: 15.79(g) Date Analyzed: 07/31/2019 16:09  
 Con. Extract Vol.: 5(mL) Dilution Factor: 5  
 Injection Volume: 2(uL) GC Column: ZB-1HT B ID: 0.25 (mm)  
 % Moisture: 23.4 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 23309 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00258	Diesel Range Organics (DRO) (C10-C25)	530		62	26
STL00383	Residual Range Organics (RRO) (C25-C36)	2300		150	31

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	104		50-150
93952-07-9	n-Triacontane-d62	163	<i>mw</i>	50-150

*mw 8-13-19*

FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Spokane Job No.: 580-87952-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070162 Lab Sample ID: 580-87952-7  
 Matrix: Solid Lab File ID: 590-0005789-021.D  
 Analysis Method: NWTPH-Dx Date Collected: 07/25/2019 16:20  
 Extraction Method: 3550C Date Extracted: 07/31/2019 08:32  
 Sample wt/vol: 15.03(g) Date Analyzed: 07/31/2019 16:30  
 Con. Extract Vol.: 5(mL) Dilution Factor: 2  
 Injection Volume: 2(uL) GC Column: ZB-1HT B ID: 0.25(mm)  
 % Moisture: 16.1 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 23309 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00258	Diesel Range Organics (DRO) (C10-C25)	120		24	10
STL00383	Residual Range Organics (RRO) (C25-C36)	840		59	12

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	88		50-150
93952-07-9	n-Triacontane-d62	105		50-150

*MW 8-13-19*



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### MEMORANDUM

DATE: August 13, 2019

TO: Seth Wing, START-IV Project Manager, E & E, Seattle, Washington

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington *MW*

SUBJ: **Organic Data Quality Assurance Review, May Creek Removal Action Site, Renton, Washington**

REF: TO: TO-68HE0718F0470 PAN: 1004530.0470.001.01

The data quality assurance review of 8 soil samples collected from the May Creek Removal Action site located in Renton, Washington, has been completed. Analysis for Extended Gasoline Range Total Petroleum Hydrocarbons (Ecology Method NWTPH-Gx) analyses was performed by Test America, Inc., Spokane, Washington. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Manual Process (S2B/4VM).

The samples were numbered:

19070156	19070157	19070158	19070159	19070160
19070161	19070162	19070612		

#### Data Qualifications:

##### 1. **Sample Holding Times: Acceptable.**

The samples were maintained and received within the QC limits of  $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ . The samples were collected on July 25, 2019, were received at the laboratory within 48 hours of collection, and were analyzed by July 31, 2019, therefore meeting QC criteria of less than 14 days between collection and analysis for soil samples.

##### 2. **Initial Calibration: Acceptable.**

Calculations were verified as correct. All relative percent differences (RPDs) were less than or equal to the laboratory control limits.

##### 3. **Continuing Calibration: Acceptable.**

Calculations were verified as correct. All percent differences were less than or equal to the laboratory control limits.

##### 4. **Blanks: Acceptable.**

A method blank was analyzed at the required frequency of every 12 hours for each matrix,



preparation technique, and analysis system. Gasoline-range TPHs were not detected in the method blank or in the trip blank.

**5. System Monitoring Compounds (SMC): Acceptable.**

All recoveries of the SMCs were greater than 10% and within QC limits.

**6. Blank Spikes (BS) and Matrix Spike (MS)/MS Duplicate (MSD) Analyses: Acceptable.**

BS, MS, and MSD results were within laboratory QC limits.

**7. Duplicates: Acceptable.**

All spike duplicate results were within laboratory QC limits.

**8. Quantitation and Quantitation Limits: Acceptable.**

Sample quantitation and sample quantitation limits were correctly calculated.

**9. Laboratory Contact: Not Required.**

No laboratory contact was required.

**10. Overall Assessment of Data for Use**

A total of 8 results were validated in this data memorandum. No sample results were qualified as estimated quantities (J) based on duplicate precision outliers, spike accuracy outliers, holding time outliers, incorrect sample containers, or sample temperature outliers. No sample results were rejected (R). No analytes were detected in the trip blank.

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the analytical method(s), the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, and/or the Office of Emergency and Remedial Response Publication "National Functional Guidelines for Superfund Organic Methods Data Review, January 2017". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

H - The sample result is biased high.

J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

K - The bias of the sample is not known.

L - The sample result is biased low.

- Q - Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.
- R - The data is rejected and unusable. The analyte may or may not be present in the sample.
- U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Spokane Job No.: 580-87952-1  
SDG No.: \_\_\_\_\_  
Client Sample ID: 19070156 Lab Sample ID: 580-87952-1  
Matrix: Solid Lab File ID: 07301932.D  
Analysis Method: NWTPH-Gx Date Collected: 07/25/2019 15:16  
Sample wt/vol: 14.727(g) Date Analyzed: 07/30/2019 21:17  
Soil Aliquot Vol: 0.86 (mL) Dilution Factor: 1  
Soil Extract Vol.: 10 (mL) GC Column: RTX-VMS 30m ID: 0.25 (mm)  
% Moisture: 15.3 Level: (low/med) Medium  
Analysis Batch No.: 23303 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00228	Gasoline	ND		4.9	1.8

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	99		41.5-162

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FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Spokane Job No.: 580-87952-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070157 Lab Sample ID: 580-87952-2  
 Matrix: Solid Lab File ID: 07301934.D  
 Analysis Method: NWTPH-Gx Date Collected: 07/25/2019 15:20  
 Sample wt/vol: 11.671(g) Date Analyzed: 07/30/2019 21:59  
 Soil Aliquot Vol: 0.86 (mL) Dilution Factor: 1  
 Soil Extract Vol.: 10(mL) GC Column: RTX-VMS 30m ID: 0.25 (mm)  
 % Moisture: 19.8 Level: (low/med) Medium  
 Analysis Batch No.: 23303 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00228	Gasoline	<del>ND</del> <i>Mw</i>		6.6	2.4

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	94		41.5-162

*Mw 8-13-19*

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Spokane Job No.: 580-87952-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070158 Lab Sample ID: 580-87952-3  
 Matrix: Solid Lab File ID: 07301937.D  
 Analysis Method: NWTPH-Gx Date Collected: 07/25/2019 15:45  
 Sample wt/vol: 10.438(g) Date Analyzed: 07/30/2019 23:03  
 Soil Aliquot Vol: 0.86 (mL) Dilution Factor: 1  
 Soil Extract Vol.: 10 (mL) GC Column: RTX-VMS 30m ID: 0.25 (mm)  
 % Moisture: 25.7 Level: (low/med) Medium  
 Analysis Batch No.: 23303 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00228	Gasoline	ND <i>Mu</i>		8.2 <i>U</i>	2.9

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	96		41.5-162

*Mu 8/3/19*

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Spokane Job No.: 580-87952-1  
SDG No.: \_\_\_\_\_  
Client Sample ID: 19070159 Lab Sample ID: 580-87952-4  
Matrix: Solid Lab File ID: 07301938.D  
Analysis Method: NWTPH-Gx Date Collected: 07/25/2019 15:48  
Sample wt/vol: 10.604(g) Date Analyzed: 07/30/2019 23:24  
Soil Aliquot Vol: 0.86 (mL) Dilution Factor: 1  
Soil Extract Vol.: 10 (mL) GC Column: RTX-VMS 30m ID: 0.25 (mm)  
% Moisture: 35.1 Level: (low/med) Medium  
Analysis Batch No.: 23303 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00228	Gasoline	23		10	3.6

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	100		41.5-162

*MW 81349*

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Spokane Job No.: 580-87952-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070160 Lab Sample ID: 580-87952-5  
 Matrix: Solid Lab File ID: 07301940.D  
 Analysis Method: NWTPH-Gx Date Collected: 07/25/2019 16:02  
 Sample wt/vol: 10.375(g) Date Analyzed: 07/31/2019 00:07  
 Soil Aliquot Vol: 0.86 (mL) Dilution Factor: 1  
 Soil Extract Vol.: 10 (mL) GC Column: RTX-VMS 30m ID: 0.25 (mm)  
 % Moisture: 33.0 Level: (low/med) Medium  
 Analysis Batch No.: 23303 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00228	Gasoline	<del>ND</del> <i>M</i>		9.6 <i>0</i>	3.5

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	100		41.5-162

*MW 8-13-19*

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Spokane Job No.: 580-87952-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070161 Lab Sample ID: 580-87952-6  
 Matrix: Solid Lab File ID: 07301941.D  
 Analysis Method: NWTPH-Gx Date Collected: 07/25/2019 16:21  
 Sample wt/vol: 11.135(g) Date Analyzed: 07/31/2019 00:28  
 Soil Aliquot Vol: 0.86 (mL) Dilution Factor: 1  
 Soil Extract Vol.: 10 (mL) GC Column: RTX-VMS 30m ID: 0.25 (mm)  
 % Moisture: 23.4 Level: (low/med) Medium  
 Analysis Batch No.: 23303 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00228	Gasoline	5.6	J <u>Q</u>	7.4	2.7

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	100		41.5-162

*MW 8/13/19*



FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Spokane Job No.: 580-87952-1  
SDG No.: \_\_\_\_\_  
Client Sample ID: 19070162 Lab Sample ID: 580-87952-7  
Matrix: Solid Lab File ID: 07301942.D  
Analysis Method: NWTPH-Gx Date Collected: 07/25/2019 16:20  
Sample wt/vol: 12.6(g) Date Analyzed: 07/31/2019 00:50  
Soil Aliquot Vol: 0.86 (mL) Dilution Factor: 1  
Soil Extract Vol.: 10 (mL) GC Column: RTX-VMS 30m ID: 0.25 (mm)  
% Moisture: 16.1 Level: (low/med) Medium  
Analysis Batch No.: 23303 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00228	Gasoline	<del>NR</del> <i>mw</i>		5.7 <i>U</i>	2.0

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	97		41.5-162

*mw 8-13-19*

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Spokane Job No.: 580-87952-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070612 Lab Sample ID: 580-87952-8  
 Matrix: Solid Lab File ID: 07301943.D  
 Analysis Method: NWTPH-Gx Date Collected: 07/25/2019 00:01  
 Sample wt/vol: 10(g) Date Analyzed: 07/31/2019 01:11  
 Soil Aliquot Vol: 0.86 (mL) Dilution Factor: 1  
 Soil Extract Vol.: 10 (mL) GC Column: RTX-VMS 30m ID: 0.25 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Medium  
 Analysis Batch No.: 23303 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00228	Gasoline	<del>ND</del> <i>[Signature]</i>		5.0 <i>[Signature]</i>	1.8

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	94		41.5-162

*[Signature]* 8-13-19



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### MEMORANDUM

DATE: August 13, 2019

TO: Seth Wing, START-IV Project Manager, E & E, Seattle, WA

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington

SUBJ: **Organic Data Quality Assurance Review, May Creek Removal Action Site, Renton, Washington**

REF TO: TO-68HE0718F0470 PAN: 1004530.0470.001.01

The data quality assurance review of 7 soil samples collected from the May Creek Removal Action site located in Renton, Washington, has been completed. Analyses for Polychlorinated Biphenyls (PCBs - EPA Method 8082) were performed by Test America, Inc., Spokane, Washington. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Manual Process (S2B/4VM).

The samples were numbered:

19070156	19070157	19070158	19070159	19070160
19070161	19070162			

#### Data Qualifications:

**1. Sample Holding Times: Acceptable.**

The samples were maintained at 0°C to 6°C. The samples were collected on July 25, 2019, extracted on July 30, 2019, and were analyzed by July 31, 2019. There are no holding time limits for Method 8082 PCBs.

**2. Instrument Performance: Acceptable.**

The surrogate retention time percent difference between the initial calibration standards and the remaining standards and samples was within QC limits.

**3. Initial and Continuing Calibration: Satisfactory.**

All initial calibration relative standard deviations (RSDs) were within QC limits. All continuing calibration % differences (% D) were within QC limits except two high and one low PCB-1016 result on one column; no actions were taken based on this outlier as PCB-1016 was not detected in any samples and the results on the other column were within QC limits.

**4. Blanks: Acceptable.**

A method blank was prepared at the required frequency of every time samples were extracted for each matrix and for each concentration level, or every 20 samples, whichever is greater, and for each

analytical system. No target analytes were detected in the laboratory blanks.

**5. System Monitoring Compounds (SMCs): Satisfactory.**

All recoveries of the SMCs were within QC limits except one high recovery; no qualifiers were required as there were no detections in that sample.

**6. Blank Spike (BS), Matrix Spike (MS), MS Duplicate (MSD) Analyses: Acceptable.**

BS, MS, and MSD recoveries were within QC limits.

**7. Duplicates: Acceptable.**

Relative Percent Differences (RPDs) of all spiked analytes were within the required control limits.

**8. Compound Identification: Satisfactory.**

All positive sample results were dual-column confirmed with differences between the columns less than 40% except PCB 1260 in sample 19070167; the lower of the two results was reported and was qualified as an estimated quantity with an unknown bias (JK).

**9. Target Compound Quantitation and Quantitation Limits: Acceptable.**

Sample results and quantitation limits were correctly calculated.

**10. Laboratory Contact**

No laboratory contact was required.

**11. Overall Assessment**

A total of 63 results were validated in this data memorandum. No sample results were qualified as estimated quantities (J) based on duplicate precision outliers, holding time outliers, incorrect sample containers, or sample temperature outliers. No sample results were rejected (R).

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the analytical method(s), the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, and/or the Office of Emergency and Remedial Response Publication "National Functional Guidelines for Superfund Organic Methods Data Review, January 2017". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

H - The sample result is biased high.

J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

K - The bias of the sample is not known.

- L - The sample result is biased low.
- Q - Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.
- R - The data is rejected and unusable. The analyte may or may not be present in the sample.
- U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.

FORM I  
PCBS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Spokane Job No.: 580-87952-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070156 Lab Sample ID: 580-87952-1  
 Matrix: Solid Lab File ID: 190730009.D  
 Analysis Method: 8082A Date Collected: 07/25/2019 15:16  
 Extraction Method: 3550C Date Extracted: 07/30/2019 13:22  
 Sample wt/vol: 15.14(g) Date Analyzed: 07/30/2019 15:43  
 Con. Extract Vol.: 5(mL) Dilution Factor: 1  
 Injection Volume: 5(mL) GC Column: STX-CLP Pst2 ID: 0.2(mm)  
 % Moisture: 15.3 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 23283 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
12674-11-2	PCB-1016	ND		12	2.6
11104-28-2	PCB-1221	ND		12	2.6
11141-16-5	PCB-1232	ND		12	2.6
53469-21-9	PCB-1242	ND		12	2.6
12672-29-6	PCB-1248	ND		12	2.6
11097-69-1	PCB-1254	ND		12	2.6
11096-82-5	PCB-1260	130		12	2.6
11100-14-4	PCB-1268	ND		12	2.6
37324-23-5	PCB-1262	ND		12	2.6

CAS NO.	SURROGATE	%REC	Q	LIMITS
877-09-8	Tetrachloro-m-xylene	84		31-142
2051-24-3	DCB Decachlorobiphenyl (Surr)	107		20-150

*MW 8-13-19*

FORM I  
PCBS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Spokane Job No.: 580-87952-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070157 Lab Sample ID: 580-87952-2  
 Matrix: Solid Lab File ID: 190730010.D  
 Analysis Method: 8082A Date Collected: 07/25/2019 15:20  
 Extraction Method: 3550C Date Extracted: 07/30/2019 13:22  
 Sample wt/vol: 15.46(g) Date Analyzed: 07/30/2019 16:04  
 Con. Extract Vol.: 5(mL) Dilution Factor: 1  
 Injection Volume: 5(mL) GC Column: STX-CLP Pst2 ID: 0.2 (mm)  
 % Moisture: 19.8 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 23283 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
12674-11-2	PCB-1016	ND		12	2.7
11104-28-2	PCB-1221	ND		12	2.7
11141-16-5	PCB-1232	ND		12	2.7
53469-21-9	PCB-1242	ND		12	2.7
12672-29-6	PCB-1248	ND		12	2.7
11097-69-1	PCB-1254	ND		12	2.7
11096-82-5	PCB-1260	15	JK	12	2.7
11100-14-4	PCB-1268	ND		12	2.7
37324-23-5	PCB-1262	ND		12	2.7

CAS NO.	SURROGATE	%REC	Q	LIMITS
877-09-8	Tetrachloro-m-xylene	87		31-142
2051-24-3	DCB Decachlorobiphenyl (Surr)	93		20-150

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FORM I  
PCBS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Spokane Job No.: 580-87952-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070158 Lab Sample ID: 580-87952-3  
 Matrix: Solid Lab File ID: 190730013.D  
 Analysis Method: 8082A Date Collected: 07/25/2019 15:45  
 Extraction Method: 3550C Date Extracted: 07/30/2019 13:22  
 Sample wt/vol: 15.21(g) Date Analyzed: 07/30/2019 17:05  
 Con. Extract Vol.: 5(mL) Dilution Factor: 1  
 Injection Volume: 5(mL) GC Column: STX-CLP Pst2 ID: 0.2 (mm)  
 % Moisture: 25.7 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 23283 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
12674-11-2	PCB-1016	ND		13	2.9
11104-28-2	PCB-1221	ND		13	2.9
11141-16-5	PCB-1232	ND		13	2.9
53469-21-9	PCB-1242	ND		13	2.9
12672-29-6	PCB-1248	ND		13	2.9
11097-69-1	PCB-1254	ND		13	2.9
11096-82-5	PCB-1260	ND		13	2.9
11100-14-4	PCB-1268	ND		13	2.9
37324-23-5	PCB-1262	ND		13	2.9

CAS NO.	SURROGATE	%REC	Q	LIMITS
877-09-8	Tetrachloro-m-xylene	188	<del>188</del>	31-142
2051-24-3	DCB Decachlorobiphenyl (Surr)	81		20-150

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8-13-19



FORM I  
PCBS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Spokane Job No.: 580-87952-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070159 Lab Sample ID: 580-87952-4  
 Matrix: Solid Lab File ID: 190730014.D  
 Analysis Method: 8082A Date Collected: 07/25/2019 15:48  
 Extraction Method: 3550C Date Extracted: 07/30/2019 13:22  
 Sample wt/vol: 15.10(g) Date Analyzed: 07/30/2019 17:26  
 Con. Extract Vol.: 5(mL) Dilution Factor: 1  
 Injection Volume: 5(mL) GC Column: STX-CLP Pst2 ID: 0.2(mm)  
 % Moisture: 35.1 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 23283 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
12674-11-2	PCB-1016	ND		15	3.4
11104-28-2	PCB-1221	ND		15	3.4
11141-16-5	PCB-1232	ND		15	3.4
53469-21-9	PCB-1242	ND		15	3.4
12672-29-6	PCB-1248	510		15	3.4
11097-69-1	PCB-1254	ND		15	3.4
11096-82-5	PCB-1260	15		15	3.4
11100-14-4	PCB-1268	ND		15	3.4
37324-23-5	PCB-1262	ND		15	3.4

CAS NO.	SURROGATE	%REC	Q	LIMITS
877-09-8	Tetrachloro-m-xylene	67		31-142
2051-24-3	DCB Decachlorobiphenyl (Surr)	90		20-150

mw 8-13-19

FORM I  
PCBS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Spokane Job No.: 580-87952-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070160 Lab Sample ID: 580-87952-5  
 Matrix: Solid Lab File ID: 190730015.D  
 Analysis Method: 8082A Date Collected: 07/25/2019 16:02  
 Extraction Method: 3550C Date Extracted: 07/30/2019 13:22  
 Sample wt/vol: 15.17(g) Date Analyzed: 07/30/2019 17:46  
 Con. Extract Vol.: 5(mL) Dilution Factor: 1  
 Injection Volume: 5(mL) GC Column: STX-CLP Pst2 ID: 0.2(mm)  
 % Moisture: 33.0 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 23283 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
12674-11-2	PCB-1016	ND		15	3.2
11104-28-2	PCB-1221	ND		15	3.2
11141-16-5	PCB-1232	ND		15	3.2
53469-21-9	PCB-1242	ND		15	3.2
12672-29-6	PCB-1248	ND		15	3.2
11097-69-1	PCB-1254	270		15	3.2
11096-82-5	PCB-1260	ND		15	3.2
11100-14-4	PCB-1268	ND		15	3.2
37324-23-5	PCB-1262	ND		15	3.2

CAS NO.	SURROGATE	%REC	Q	LIMITS
877-09-8	Tetrachloro-m-xylene	46		31-142
2051-24-3	DCB Decachlorobiphenyl (Surr)	86		20-150

*mw 8-13-19*

FORM I  
PCBS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Spokane Job No.: 580-87952-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070161 Lab Sample ID: 580-87952-6  
 Matrix: Solid Lab File ID: 190730016.D  
 Analysis Method: 8082A Date Collected: 07/25/2019 16:21  
 Extraction Method: 3550C Date Extracted: 07/30/2019 13:22  
 Sample wt/vol: 15.06(g) Date Analyzed: 07/30/2019 18:07  
 Con. Extract Vol.: 5(mL) Dilution Factor: 1  
 Injection Volume: 5(mL) GC Column: STX-CLP Pst2 ID: 0.2 (mm)  
 % Moisture: 23.4 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 23283 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
12674-11-2	PCB-1016	ND		13	2.9
11104-28-2	PCB-1221	ND		13	2.9
11141-16-5	PCB-1232	ND		13	2.9
12672-29-6	PCB-1248	ND		13	2.9
11097-69-1	PCB-1254	ND		13	2.9
11096-82-5	PCB-1260	ND		13	2.9
11100-14-4	PCB-1268	ND		13	2.9
37324-23-5	PCB-1262	ND		13	2.9

CAS NO.	SURROGATE	%REC	Q	LIMITS
877-09-8	Tetrachloro-m-xylene	78		31-142
2051-24-3	DCB Decachlorobiphenyl (Surr)	79		20-150

*mw 8-13-19*

FORM I  
PCBS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Spokane Job No.: 580-87952-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070161 Lab Sample ID: 580-87952-6  
 Matrix: Solid Lab File ID: 190731007.D  
 Analysis Method: 8082A Date Collected: 07/25/2019 16:21  
 Extraction Method: 3550C Date Extracted: 07/30/2019 13:22  
 Sample wt/vol: 15.06(g) Date Analyzed: 07/31/2019 13:17  
 Con. Extract Vol.: 5(mL) Dilution Factor: 10  
 Injection Volume: 5(mL) GC Column: STX-CLP Pst2 ID: 0.2(mm)  
 % Moisture: 23.4 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 23313 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
53469-21-9	PCB-1242	990		130	29

CAS NO.	SURROGATE	%REC	Q	LIMITS
877-09-8	Tetrachloro-m-xylene	71		31-142
2051-24-3	DCB Decachlorobiphenyl (Surr)	84		20-150

*mw 8-13-19*

FORM I  
PCBS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Spokane Job No.: 580-87952-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070162 Lab Sample ID: 580-87952-7  
 Matrix: Solid Lab File ID: 190730017.D  
 Analysis Method: 8082A Date Collected: 07/25/2019 16:20  
 Extraction Method: 3550C Date Extracted: 07/30/2019 13:22  
 Sample wt/vol: 15.11(g) Date Analyzed: 07/30/2019 18:27  
 Con. Extract Vol.: 5(mL) Dilution Factor: 1  
 Injection Volume: 5(mL) GC Column: STX-CLP Pst2 ID: 0.2 (mm)  
 % Moisture: 16.1 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 23283 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
12674-11-2	PCB-1016	ND		12	2.6
11104-28-2	PCB-1221	ND		12	2.6
11141-16-5	PCB-1232	ND		12	2.6
53469-21-9	PCB-1242	ND		12	2.6
12672-29-6	PCB-1248	ND		12	2.6
11097-69-1	PCB-1254	ND		12	2.6
11096-82-5	PCB-1260	ND		12	2.6
11100-14-4	PCB-1268	ND		12	2.6
37324-23-5	PCB-1262	ND		12	2.6

CAS NO.	SURROGATE	%REC	Q	LIMITS
877-09-8	Tetrachloro-m-xylene	67		31-142
2051-24-3	DCB Decachlorobiphenyl (Surr)	72		20-150

*Mw 8-13-19*



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### MEMORANDUM

DATE: August 12, 2019

TO: Seth Wing, START-IV Project Manager, E & E, Seattle, WA

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington *MW*

SUBJ: **Organic Data Quality Assurance Review, May Creek Removal Action Site, Renton, Washington**

REF: TO: TO-68HE0718F0470      PAN: 1004530.0470.001.01

The data quality assurance review of four soil samples collected from the May Creek Removal Action site located in Renton, Washington, has been completed. Analysis for Extended Diesel Range Total Petroleum Hydrocarbons (Ecology Method NWTPH-Dx) was performed by Test America, Inc., Spokane, Washington. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Manual Process (S2B/4VM).

The samples were numbered:    19070163      19070164      19070165      19070166

#### Data Qualifications:

**1. Sample Holding Times: Acceptable.**

The samples were maintained at  $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ . The samples were collected on July 26, 2019, extracted on July 31, 2019, and analyzed by July 31, 2019, therefore meeting QC criteria of less than 14 days between collection and extraction for soil samples and less than 40 days between extraction and analysis.

**2. Initial Calibration: Acceptable.**

Calculations were verified as correct. All relative percent differences (RPDs) were within the laboratory control limits.

**3. Continuing Calibration: Acceptable.**

Calculations were verified as correct. All percent differences (%Ds) were within the laboratory control limits.

**4. Blanks: Acceptable.**

A method blank was analyzed for each extraction batch for each matrix and analysis system. Diesel- and motor oil-range TPHs were not detected in the method blank.

**5. System Monitoring Compounds (SMC): Satisfactory.**

All recoveries of the SMCs were greater than 10% and within QC limits except one high sample recovery; no actions were taken as the sample was diluted 20x due to high analyte concentrations.

**6. Blank Spike (BS) and BS Duplicate (BSD): Acceptable.**

BS and BSD recoveries were within QC limits.

**7. Duplicates: Acceptable.**

All duplicate and spike duplicate results were within QC limits.

**8. Quantitation and Quantitation Limits: Acceptable.**

Sample concentrations were correctly calculated.

**9. Laboratory Contact: Not Required.**

No laboratory contact was required.

**10. Overall Assessment of Data for Use**

A total of 8 results were validated in this data memorandum. No sample results were qualified as estimated quantities (J) based on duplicate precision outliers, spike accuracy outliers, holding time outliers, incorrect sample containers, or sample temperature outliers. No sample results were rejected (R).

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the analytical method(s), the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, and/or the Office of Emergency and Remedial Response Publication "National Functional Guidelines for Superfund Organic Methods Data Review, January 2017". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

H - The sample result is biased high.

J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

K - The bias of the sample is not known.

L - The sample result is biased low.

Q - Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.

R - The data is rejected and unusable. The analyte may or may not be present in the sample.

- U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.



FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Spokane Job No.: 580-87962-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070163 Lab Sample ID: 580-87962-1  
 Matrix: Solid Lab File ID: 590-0005789-006.D  
 Analysis Method: NWTPH-Dx Date Collected: 07/26/2019 10:59  
 Extraction Method: 3550C Date Extracted: 07/31/2019 08:32  
 Sample wt/vol: 15.55(g) Date Analyzed: 07/31/2019 11:21  
 Con. Extract Vol.: 5(mL) Dilution Factor: 20  
 Injection Volume: 2(uL) GC Column: ZB-1HT B ID: 0.25(mm)  
 % Moisture: 46.8 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 23309 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00258	Diesel Range Organics (DRO) (C10-C25)	590		360	150
STL00383	Residual Range Organics (RRO) (C25-C36)	6200		910	180

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	124		50-150
93952-07-9	n-Triacontane-d62	249	<i>mw</i>	50-150

*mw 8-12-19*

FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Spokane Job No.: 580-87962-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070164 Lab Sample ID: 580-87962-2  
 Matrix: Solid Lab File ID: 590-0005789-007.D  
 Analysis Method: NWTPH-Dx Date Collected: 07/26/2019 10:55  
 Extraction Method: 3550C Date Extracted: 07/31/2019 08:32  
 Sample wt/vol: 15.73(g) Date Analyzed: 07/31/2019 11:42  
 Con. Extract Vol.: 5(mL) Dilution Factor: 5  
 Injection Volume: 2(uL) GC Column: ZB-1HT B ID: 0.25(mm)  
 % Moisture: 28.0 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 23309 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00258	Diesel Range Organics (DRO) (C10-C25)	<del>ND</del> <i>mw</i>		66	28
STL00383	Residual Range Organics (RRO) (C25-C36)	360		170	33

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	69		50-150
93952-07-9	n-Triacontane-d62	98		50-150

*MW 8/2-19*

FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>Eurofins TestAmerica, Spokane</u>	Job No.: <u>580-87962-1</u>
SDG No.: _____	
Client Sample ID: <u>19070165</u>	Lab Sample ID: <u>580-87962-4</u>
Matrix: <u>Solid</u>	Lab File ID: <u>590-0005789-009.D</u>
Analysis Method: <u>NWTPH-Dx</u>	Date Collected: <u>07/26/2019 11:06</u>
Extraction Method: <u>3550C</u>	Date Extracted: <u>07/31/2019 08:32</u>
Sample wt/vol: <u>15.24(g)</u>	Date Analyzed: <u>07/31/2019 12:23</u>
Con. Extract Vol.: <u>5(mL)</u>	Dilution Factor: <u>20</u>
Injection Volume: <u>2(uL)</u>	GC Column: <u>ZB-1HT B</u> ID: <u>0.25(mm)</u>
% Moisture: <u>24.3</u>	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>23309</u>	Units: <u>mg/Kg</u>

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00258	Diesel Range Organics (DRO) (C10-C25)	<del>ND</del> <i>mu</i>		260	110
STL00383	Residual Range Organics (RRO) (C25-C36)	800		650	130

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	113		50-150
93952-07-9	n-Triacontane-d62	148		50-150

*John W. 8/2/19*

FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Spokane Job No.: 580-87962-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070166 Lab Sample ID: 580-87962-3  
 Matrix: Solid Lab File ID: 590-0005789-008.D  
 Analysis Method: NWTPH-Dx Date Collected: 07/26/2019 10:48  
 Extraction Method: 3550C Date Extracted: 07/31/2019 08:32  
 Sample wt/vol: 15.42(g) Date Analyzed: 07/31/2019 12:02  
 Con. Extract Vol.: 5(mL) Dilution Factor: 10  
 Injection Volume: 2(uL) GC Column: ZB-1HT B ID: 0.25(mm)  
 % Moisture: 40.0 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 23309 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00258	Diesel Range Organics (DRO) (C10-C25)	120	J <u>Q</u>	160	68
STL00383	Residual Range Organics (RRO) (C25-C36)	1400		410	81

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	105		50-150
93952-07-9	n-Triacontane-d62	130		50-150

*MW 8/2-19*

**MEMORANDUM**

DATE: February 20, 2020

TO: Seth Wing, START-IV Project Manager, E & E, Seattle, WA

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington *MW*

SUBJ: **Inorganic Data Quality Assurance Review, May Creek Removal Action Site,  
Renton, Washington**

REF: TO: TO-68HE0718F0470 PAN: 1004530.0470.001.01

The data quality assurance review of 2 soil samples collected from the May Creek Removal Action site in Renton, Washington, has been completed. Target Analyte List (TAL) metals analyses (EPA Methods 6010 and 7471) were performed by Test America, Inc., Tacoma, Washington. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Manual Process (S2B/4VM).

The samples were numbered: 19070178 19070179

**Data Qualifications:**

**1. Sample Holding Times: Acceptable.**

The samples were maintained at  $< 6^{\circ}\text{C}$  (only applies to mercury). The samples were collected on August 6 and 7, 2019, and were analyzed by August 13, 2019, therefore meeting QC criteria of less than 6 months between collection, extraction, and analysis (28 days for mercury).

**2. Initial and Continuing Calibration: Acceptable.**

A minimum of one calibration standard and a blank were analyzed at the beginning of the ICP analysis sequence and after every 10 samples. No results were greater than 110% of the highest calibration standard. All ICP recoveries were within the QC limits. All AA recoveries were within QC limits and the initial calibration correlation coefficient was  $> 0.995$ .

**3. Blanks: Satisfactory.**

A preparation blank was analyzed for each 20 samples or per matrix per concentration level. Blanks were analyzed after each Initial or Continuing Calibration Verification. There were no detections in any blanks that potentially affected sample results except beryllium in sample 19070178 and cadmium in sample 19070179; associated sample results were qualified as not detected (U) at the reporting limit.

**4. ICP Interference Check Sample: Acceptable.**

An Interference Check Sample (ICS) was analyzed at the beginning of each sequence or at least twice every 8 hours, whichever was more frequent. All applicable ICS (solution AB) results were within QC limits of 80% - 120% recovery.

**5. ICP Serial Dilution: Acceptable.**

A serial dilution analysis was performed per matrix per concentration or per sample delivery group, whichever was more frequent. All applicable serial dilution results were within QC limits.

**6. Duplicate Analysis: Acceptable.**

A laboratory spike duplicate analysis was performed per SDG or per matrix per concentration level, whichever was more frequent. All spike duplicate results were within QC limits.

**7. Laboratory Control Sample Analysis: Acceptable.**

A Laboratory Control Sample (LCS) was analyzed per SDG per matrix. All LCS and LCS duplicate results were within the established control limits.

**8. Overall Assessment of Data for Use**

A total of 46 results were validated in this data memorandum. No sample results were qualified as estimated quantities (J) based on duplicate precision outliers, holding time outliers, spike accuracy outliers, incorrect sample containers, or sample temperature outliers. No sample results were rejected (R).

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the analytical method(s), the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, and/or the Office of Emergency and Remedial Response Publication "National Functional Guidelines for Superfund Inorganic Methods Data Review, January 2017". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

H - The sample result is biased high.

J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

K - The bias of the sample is not known.

L - The sample result is biased low.

Q - Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.

R - The data is rejected and unusable. The analyte may or may not be present in the sample.

U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.

UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.

1A-IN  
INORGANIC ANALYSIS DATA SHEET  
METALS

Client Sample ID: 19070178

Lab Sample ID: 580-88245-8

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-88245-1

SDG ID.:

Matrix: Solid

Date Sampled: 08/07/2019 14:29

Reporting Basis: DRY

Date Received: 08/08/2019 13:20

% Solids: 91.1

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7429-90-5	Aluminum	11000	53	7.0	mg/Kg			1	6010D
7440-36-0	Antimony	1.6	2.1	0.18	mg/Kg	JQ		1	6010D
7440-38-2	Arsenic	5.7	2.1	0.17	mg/Kg			1	6010D
7440-39-3	Barium	59	0.35	0.055	mg/Kg			1	6010D
7440-41-7	Beryllium	0.049	0.70	0.011	mg/Kg	/mu		1	6010D
7440-43-9	Cadmium	ND	0.70	0.034	mg/Kg			1	6010D
7440-70-2	Calcium	5700	39	7.0	mg/Kg			1	6010D
7440-47-3	Chromium	27	0.91	0.15	mg/Kg			1	6010D
7440-48-4	Cobalt	6.7	0.70	0.018	mg/Kg			1	6010D
7440-50-8	Copper	16	1.8	0.28	mg/Kg			1	6010D
7439-89-6	Iron	16000	46	11	mg/Kg			1	6010D
7439-92-1	Lead	36	1.1	0.16	mg/Kg			1	6010D
7439-95-4	Magnesium	4900	39	5.6	mg/Kg			1	6010D
7439-96-5	Manganese	270	1.4	0.27	mg/Kg			1	6010D
7440-02-0	Nickel	32	0.70	0.072	mg/Kg			1	6010D
7440-09-7	Potassium	610	120	4.8	mg/Kg		/mu	1	6010D
7782-49-2	Selenium	ND	3.5	0.28	mg/Kg			1	6010D
7440-23-5	Sodium	260	70	13	mg/Kg			1	6010D
7440-28-0	Thallium	ND	3.5	0.29	mg/Kg			1	6010D
7440-62-2	Vanadium	37	1.4	0.18	mg/Kg			1	6010D
7440-66-6	Zinc	45	2.8	0.67	mg/Kg			1	6010D
7440-22-4	Silver	ND	1.8	0.39	mg/Kg			1	6010D
7439-97-6	Mercury	0.015	0.024	0.0071	mg/Kg	JQ		1	7471A

MW 2-20-20

1A-IN  
INORGANIC ANALYSIS DATA SHEET  
METALS

Client Sample ID: 19070179

Lab Sample ID: 580-88245-9

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-88245-1

SDG ID.:

Matrix: Solid

Date Sampled: 08/07/2019 14:42

Reporting Basis: DRY

Date Received: 08/08/2019 13:20

% Solids: 91.8

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7429-90-5	Aluminum	11000	53	7.1	mg/Kg			1	6010D
7440-36-0	Antimony	1.2	2.1	0.19	mg/Kg	JQ		1	6010D
7440-38-2	Arsenic	5.4	2.1	0.18	mg/Kg			1	6010D
7440-39-3	Barium	59	0.36	0.056	mg/Kg			1	6010D
7440-41-7	Beryllium	ND	0.71	0.011	mg/Kg			1	6010D
7440-43-9	Cadmium	0.039	0.71	0.035	mg/Kg	Am		1	6010D
7440-70-2	Calcium	4800	39	7.1	mg/Kg			1	6010D
7440-47-3	Chromium	25	0.93	0.15	mg/Kg			1	6010D
7440-48-4	Cobalt	6.7	0.71	0.018	mg/Kg			1	6010D
7440-50-8	Copper	16	1.8	0.29	mg/Kg			1	6010D
7439-89-6	Iron	15000	46	11	mg/Kg			1	6010D
7439-92-1	Lead	30	1.1	0.16	mg/Kg			1	6010D
7439-95-4	Magnesium	4600	39	5.6	mg/Kg			1	6010D
7439-96-5	Manganese	240	1.4	0.27	mg/Kg			1	6010D
7440-02-0	Nickel	30	0.71	0.073	mg/Kg			1	6010D
7440-09-7	Potassium	630	120	4.9	mg/Kg		Am	1	6010D
7782-49-2	Selenium	ND	3.6	0.28	mg/Kg			1	6010D
7440-23-5	Sodium	240	71	13	mg/Kg			1	6010D
7440-28-0	Thallium	ND	3.6	0.30	mg/Kg			1	6010D
7440-62-2	Vanadium	35	1.4	0.19	mg/Kg			1	6010D
7440-66-6	Zinc	45	2.9	0.68	mg/Kg			1	6010D
7440-22-4	Silver	ND	1.8	0.40	mg/Kg			1	6010D
7439-97-6	Mercury	0.031	0.024	0.0071	mg/Kg			1	7471A

Wm  
2-20-20





## ecology and environment, inc.

Global Environmental Specialists

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### MEMORANDUM

DATE: September 18, 2019

TO: Seth Wing, START-IV Project Manager, E & E, Seattle, WA

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington *MW*

SUBJ: **Organic Data Quality Assurance Review, May Creek Removal Action Site, Renton, Washington**

REF: TO: TO-68HE0718F0470 PAN: 1004530.0470.001.01

The data quality assurance review of 13 soil samples collected from the May Creek Removal Action site located in Renton, Washington, has been completed. Analysis for Extended Diesel Range Total Petroleum Hydrocarbons (Ecology Method NWTPH-Dx) was performed by Test America, Inc., Tacoma, Washington. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Manual Process (S2B/4VM).

The samples were numbered:

19070167	19070168	19070169	19070170	19070171
19070172	19070173	19070174	19070175	19070176
19070177	19070178	19070179		

#### **Data Qualifications:**

##### **1. Sample Holding Times: Acceptable.**

The samples were maintained at  $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ . The samples were collected on August 6 and 7, 2019, extracted on August 21, 2019, and analyzed by August 25, 2019, therefore meeting QC criteria of less than 14 days between collection and extraction for soil samples and less than 40 days between extraction and analysis.

##### **2. Initial Calibration: Acceptable.**

Calculations were verified as correct. All relative percent differences (RPDs) were within the laboratory control limits.

##### **3. Continuing Calibration: Acceptable.**

Calculations were verified as correct. All percent differences (%Ds) were within the laboratory control limits.

##### **4. Blanks: Acceptable.**

A method blank was analyzed for each extraction batch for each matrix and analysis system. Diesel- and motor oil-range TPHs were not detected in the method blank.

**5. System Monitoring Compounds (SMC): Acceptable.**

All recoveries of the SMCs were within QC limits.

**6. Blank Spike (BS) and BS Duplicate (BSD): Satisfactory.**

BS and BSD recoveries were within QC limits.

**7. Duplicates: Satisfactory.**

All duplicate and spike duplicate results were within QC limits except diesel-range TPHs in samples 19070167Dup and 19070168Dup and motor oil-range TPHs in sample 19070171Dup; no actions were taken based on the duplicate outliers alone.

**8. Quantitation and Quantitation Limits: Acceptable.**

Sample concentrations were correctly calculated.

**9. Laboratory Contact: Not Required.**

No laboratory contact was required.

**10. Overall Assessment of Data for Use**

The chromatographic patterns for diesel-range organics in samples 19070168 through 19070170 were later than the diesel standard; associated positive results were qualified as estimated quantities with a high bias (JH).

A total of 26 results were validated in this data memorandum. No sample results were qualified as estimated quantities (J) based on duplicate precision outliers, spike accuracy outliers, holding time outliers, incorrect sample containers, or sample temperature outliers. No sample results were rejected (R).

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the analytical method(s), the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, and/or the Office of Emergency and Remedial Response Publication "National Functional Guidelines for Superfund Organic Methods Data Review, January 2017". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

H - The sample result is biased high.

J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

- K - The bias of the sample is not known.
- L - The sample result is biased low.
- Q - Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.
- R - The data is rejected and unusable. The analyte may or may not be present in the sample.
- U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.

FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-88245-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070167 Lab Sample ID: 580-88245-10  
 Matrix: Solid Lab File ID: 013F1301.D  
 Analysis Method: NWTPH-Dx Date Collected: 08/06/2019 09:15  
 Extraction Method: 3546 Date Extracted: 08/20/2019 11:01  
 Sample wt/vol: 10.196(g) Date Analyzed: 08/24/2019 19:45  
 Con. Extract Vol.: 10(mL) Dilution Factor: 10  
 Injection Volume: 1(uL) GC Column: ZB-1HT ID: 0.25(mm)  
 % Moisture: 10.7 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 309269 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00163	#2 Diesel (C10-C24)	200	JQ	550	140
STL00299	Motor Oil (>C24-C36)	2300		550	190

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	51		50-150

FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-88245-1  
SDG No.: \_\_\_\_\_  
Client Sample ID: 19070168 Lab Sample ID: 580-88245-11  
Matrix: Solid Lab File ID: 015F1501.D  
Analysis Method: NWTPH-Dx Date Collected: 08/06/2019 09:09  
Extraction Method: 3546 Date Extracted: 08/20/2019 11:01  
Sample wt/vol: 10.230(g) Date Analyzed: 08/24/2019 20:30  
Con. Extract Vol.: 10(mL) Dilution Factor: 10  
Injection Volume: 1(uL) GC Column: ZB-1HT ID: 0.25(mm)  
% Moisture: 27.9 GPC Cleanup: (Y/N) N  
Analysis Batch No.: 309269 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00163	#2 Diesel (C10-C24)	780	JH	680	170
STL00299	Motor Oil (>C24-C36)	3300		680	240

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	76		50-150

*MW 9-18-19*



FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-88245-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070169 Lab Sample ID: 580-88245-12  
 Matrix: Solid Lab File ID: 016F1601.D  
 Analysis Method: NWTPH-Dx Date Collected: 08/06/2019 09:04  
 Extraction Method: 3546 Date Extracted: 08/20/2019 11:01  
 Sample wt/vol: 10.833(g) Date Analyzed: 08/24/2019 20:52  
 Con. Extract Vol.: 10(mL) Dilution Factor: 10  
 Injection Volume: 1(uL) GC Column: ZB-1HT ID: 0.25(mm)  
 % Moisture: 14.9 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 309269 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00163	#2 Diesel (C10-C24)	380	<u>JQ</u>	540	130
STL00299	Motor Oil (>C24-C36)	2600		540	190

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	81		50-150

*mw 9/8/19*

FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-88245-1  
SDG No.: \_\_\_\_\_  
Client Sample ID: 19070170 Lab Sample ID: 580-88245-13  
Matrix: Solid Lab File ID: 017F1701.D  
Analysis Method: NWTPH-Dx Date Collected: 08/06/2019 09:00  
Extraction Method: 3546 Date Extracted: 08/20/2019 11:01  
Sample wt/vol: 10.016(g) Date Analyzed: 08/24/2019 21:15  
Con. Extract Vol.: 10(mL) Dilution Factor: 10  
Injection Volume: 1(uL) GC Column: ZB-1HT ID: 0.25(mm)  
% Moisture: 17.6 GPC Cleanup: (Y/N) N  
Analysis Batch No.: 309269 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00163	#2 Diesel (C10-C24)	ND		610	150
STL00299	Motor Oil (>C24-C36)	1100		610	210

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	68		50-150

*mw 9/18/19*

FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-88245-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070171 Lab Sample ID: 580-88245-1  
 Matrix: Solid Lab File ID: 007F0701.D  
 Analysis Method: NWTPH-Dx Date Collected: 08/07/2019 10:44  
 Extraction Method: 3546 Date Extracted: 08/21/2019 11:45  
 Sample wt/vol: 10.186(g) Date Analyzed: 08/25/2019 19:54  
 Con. Extract Vol.: 10(mL) Dilution Factor: 50  
 Injection Volume: 1(uL) GC Column: ZB-1HT ID: 0.25(mm)  
 % Moisture: 25.8 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 309296 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00163	#2 Diesel (C10-C24)	ND		3300	810
STL00299	Motor Oil (>C24-C36)	4900		3300	1200

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	70		50-150

*Mug 18/10*



FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-88245-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070172 Lab Sample ID: 580-88245-2  
 Matrix: Solid Lab File ID: 009F0901.D  
 Analysis Method: NWTPH-Dx Date Collected: 08/07/2019 10:44  
 Extraction Method: 3546 Date Extracted: 08/21/2019 11:45  
 Sample wt/vol: 10.313(g) Date Analyzed: 08/25/2019 20:38  
 Con. Extract Vol.: 10 (mL) Dilution Factor: 25  
 Injection Volume: 1 (uL) GC Column: ZB-1HT ID: 0.25 (mm)  
 % Moisture: 23.8 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 309296 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00163	#2 Diesel (C10-C24)	ND <i>mu</i>		1600 <i>U</i>	390
STL00299	Motor Oil (>C24-C36)	3300		1600	560

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	58		50-150

*mu AHP*

FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-88245-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070173 Lab Sample ID: 580-88245-3  
 Matrix: Solid Lab File ID: 010F1001.D  
 Analysis Method: NWTPH-Dx Date Collected: 08/07/2019 10:51  
 Extraction Method: 3546 Date Extracted: 08/21/2019 11:45  
 Sample wt/vol: 10.501(g) Date Analyzed: 08/25/2019 21:01  
 Con. Extract Vol.: 10(mL) Dilution Factor: 50  
 Injection Volume: 1(uL) GC Column: ZB-1HT ID: 0.25 (mm)  
 % Moisture: 15.1 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 309296 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00163	#2 Diesel (C10-C24)	ND		2800	690
STL00299	Motor Oil (>C24-C36)	4800		2800	980

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	59		50-150

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FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-88245-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070174 Lab Sample ID: 580-88245-4  
 Matrix: Solid Lab File ID: 011F1101.D  
 Analysis Method: NWTPH-Dx Date Collected: 08/07/2019 10:55  
 Extraction Method: 3546 Date Extracted: 08/21/2019 11:45  
 Sample wt/vol: 10.061(g) Date Analyzed: 08/25/2019 21:23  
 Con. Extract Vol.: 10(mL) Dilution Factor: 20  
 Injection Volume: 1(uL) GC Column: ZB-1HT ID: 0.25(mm)  
 % Moisture: 24.7 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 309296 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00163	#2 Diesel (C10-C24)	ND		1300	320
STL00299	Motor Oil (>C24-C36)	2700		1300	460

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	56		50-150

*MW 9/8/19*

FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-88245-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070175 Lab Sample ID: 580-88245-5  
 Matrix: Solid Lab File ID: 012F1201.D  
 Analysis Method: NWTPH-Dx Date Collected: 08/07/2019 11:00  
 Extraction Method: 3546 Date Extracted: 08/21/2019 11:45  
 Sample wt/vol: 10.966(g) Date Analyzed: 08/25/2019 21:45  
 Con. Extract Vol.: 10(mL) Dilution Factor: 20  
 Injection Volume: 1(uL) GC Column: ZB-1HT ID: 0.25(mm)  
 % Moisture: 12.5 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 309296 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00163	#2 Diesel (C10-C24)	650	JQ	1000	260
STL00299	Motor Oil (>C24-C36)	5000		1000	360

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	56		50-150

*Mu 9-18-19*



FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-88245-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070176 Lab Sample ID: 580-88245-6  
 Matrix: Solid Lab File ID: 013F1301.D  
 Analysis Method: NWTPH-Dx Date Collected: 08/07/2019 11:05  
 Extraction Method: 3546 Date Extracted: 08/21/2019 11:45  
 Sample wt/vol: 10.790(g) Date Analyzed: 08/25/2019 22:07  
 Con. Extract Vol.: 10(mL) Dilution Factor: 20  
 Injection Volume: 1(uL) GC Column: ZB-1HT ID: 0.25(mm)  
 % Moisture: 10.8 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 309296 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00163	#2 Diesel (C10-C24)	ND		1000	260
STL00299	Motor Oil (>C24-C36)	1600		1000	360

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	56		50-150

*MW 8/19*

FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-88245-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070177 Lab Sample ID: 580-88245-7  
 Matrix: Solid Lab File ID: 015F1501.D  
 Analysis Method: NWTPH-Dx Date Collected: 08/07/2019 11:10  
 Extraction Method: 3546 Date Extracted: 08/21/2019 11:45  
 Sample wt/vol: 10.603(g) Date Analyzed: 08/25/2019 22:52  
 Con. Extract Vol.: 10(mL) Dilution Factor: 20  
 Injection Volume: 1(uL) GC Column: ZB-1HT ID: 0.25 (mm)  
 % Moisture: 10.7 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 309296 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00163	#2 Diesel (C10-C24)	<u>ND</u>		1100	260
STL00299	Motor Oil (>C24-C36)	1600		1100	370

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	52		50-150

*MW 7/8/19*

FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-88245-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070178 Lab Sample ID: 580-88245-8  
 Matrix: Solid Lab File ID: 016F1601.D  
 Analysis Method: NWTPH-Dx Date Collected: 08/07/2019 14:29  
 Extraction Method: 3546 Date Extracted: 08/21/2019 11:45  
 Sample wt/vol: 10.413(g) Date Analyzed: 08/25/2019 23:14  
 Con. Extract Vol.: 10(mL) Dilution Factor: 1  
 Injection Volume: 1(uL) GC Column: ZB-1HT ID: 0.25(mm)  
 % Moisture: 8.9 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 309296 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00163	#2 Diesel (C10-C24)	31	JQ	53	13
STL00299	Motor Oil (>C24-C36)	230		53	18

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	84		50-150

*MW 97 8/9*

FORM I  
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-88245-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070179 Lab Sample ID: 580-88245-9  
 Matrix: Solid Lab File ID: 017F1701.D  
 Analysis Method: NWTPH-Dx Date Collected: 08/07/2019 14:42  
 Extraction Method: 3546 Date Extracted: 08/21/2019 11:45  
 Sample wt/vol: 10.682(g) Date Analyzed: 08/25/2019 23:36  
 Con. Extract Vol.: 10(mL) Dilution Factor: 1  
 Injection Volume: 1(uL) GC Column: ZB-1HT ID: 0.25(mm)  
 % Moisture: 8.2 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 309296 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00163	#2 Diesel (C10-C24)	53		51	13
STL00299	Motor Oil (>C24-C36)	270		51	18

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	83		50-150

*Mw Q4 879*





## ecology and environment, inc.

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### MEMORANDUM

DATE: September 18, 2019

TO: Seth Wing, START-IV Project Manager, E & E, Seattle, WA

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington *mw*

SUBJ: **Organic Data Quality Assurance Review, May Creek Removal Action Site, Renton, Washington**

REF: TO: TO-68HE0718F0470 PAN: 1004530.0470.001.01

The data quality assurance review of 13 soil samples collected from the May Creek Removal Action site located in Renton, Washington, has been completed. Analyses for Chlorinated Pesticides (EPA Method 8081) and Polychlorinated Biphenyls (PCBs - EPA Method 8082) were performed by Test America, Inc., Tacoma, Washington. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Manual Process (S2B/4VM).

The samples were numbered:

19070167	19070168	19070169	19070170	19070171
19070172	19070173	19070174	19070175	19070176
19070177	19070178	19070179		

#### Data Qualifications:

##### **1. Sample Holding Times: Acceptable.**

The samples were maintained at 0°C to 6°C. The samples were collected on August 6 and 7, 2019, extracted by August 19, 2019, and were analyzed by August 23, 2019, therefore meeting QC criteria of less than 14 days between collection and soil sample extraction and less than 40 days between extraction and analysis. There are no holding time limits for Method 8082 PCBs.

##### **2. Instrument Performance: Acceptable.**

The surrogate retention time percent difference between the initial calibration standards and the remaining standards and samples was within QC limits.

##### **3. Initial and Continuing Calibration: Satisfactory.**

All initial calibration relative standard deviations (RSDs) were within QC limits. All continuing calibration % differences (% D) were within QC limits except several high results (no actions were taken as these analytes were not detected in the associated samples), SMC outliers (no actions were taken as sample recoveries were acceptable except when matrix interference occurred), several low results on one column only (no actions were taken as the results from the other column were within QC limits), PCB-1260 with low results on both columns (associated reporting limits in sample 19070167 through

19070172 were qualified as estimated quantities with a low bias [UJL]), and low recoveries on both columns for 4,4'-DDT, beta-BHC, cis-Chlordane, delta-BHC, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin aldehyde, Endrin ketone, Heptachlor, trans-Chlordane, Heptachlor epoxide and Methoxychlor associated with both pesticide samples (reporting limits were qualified as estimated quantities with a low bias [UJL]).

**4. Blanks: Satisfactory.**

A method blank was prepared at the required frequency of every time samples were extracted for each matrix and for each concentration level, or every 20 samples, whichever is greater, and for each analytical system. No target analytes were detected in the laboratory blanks except endosulfan I; no actions were taken as endosulfan I was not detected in any samples.

**5. System Monitoring Compounds (SMCs): Satisfactory.**

All recoveries of the SMCs were within QC limits except some high outliers (no actions were taken as no analytes were detected), some outliers on one column only (no actions were taken as the results for the other analytes were within QC limits), and some outliers due to matrix interference (no actions were taken based on matrix interference outliers).

**6. Blank Spike (BS) Analyses: Acceptable.**

BS and BS duplicate recoveries were within QC limits.

**7. Duplicates: Acceptable.**

Relative Percent Differences (RPDs) of spiked analytes were within the required control limits.

**8. Compound Identification: Satisfactory.**

All positive sample results were dual-column confirmed with differences between the columns less than 40% except PCB-1260 in sample 19070170 and PCB-1016 in sample 19070173. The lower of the two results is usually reported and the associated results were qualified as estimated quantities with an unknown bias (JK).

**9. Target Compound Quantitation and Quantitation Limits: Acceptable.**

Sample results and quantitation limits were correctly calculated.

**10. Laboratory Contact**

No laboratory contact was required.

**11. Overall Assessment**

A total of 377 results were validated in this data memorandum. No sample results were qualified as estimated quantities (J) based on duplicate precision outliers, holding time outliers, spike accuracy outliers, incorrect sample containers, or sample temperature outliers. No sample results were rejected (R).

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result. This updated memorandum provides additional results that weren't provided in the original submittal.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling

Plan and/or Sampling and Quality Assurance Plan, the analytical method(s), the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, and/or the Office of Emergency and Remedial Response Publication "National Functional Guidelines for Superfund Organic Methods Data Review, January 2017". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

- H - The sample result is biased high.
- J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
- K - The bias of the sample is not known.
- L - The sample result is biased low.
- Q - Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.
- R - The data is rejected and unusable. The analyte may or may not be present in the sample.
- U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.

FORM I  
PESTICIDES ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-88245-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070178 Lab Sample ID: 580-88245-8  
 Matrix: Solid Lab File ID: 45H081719a035.D  
 Analysis Method: 8081B Date Collected: 08/07/2019 14:29  
 Extraction Method: 3546 Date Extracted: 08/15/2019 09:30  
 Sample wt/vol: 10.909(g) Date Analyzed: 08/17/2019 19:36  
 Con. Extract Vol.: 10(mL) Dilution Factor: 1  
 Injection Volume: 1(uL) GC Column: ZB-CLPest-1 ID: 0.25 (mm)  
 % Moisture: 8.9 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 308639 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
309-00-2	Aldrin	ND		3.0	0.38
319-84-6	alpha-BHC	ND		2.0	0.16
319-85-7	beta-BHC	ND		5.0	0.25
319-86-8	delta-BHC	ND		3.0	0.28
58-89-9	gamma-BHC (Lindane)	ND		2.0	0.75
72-54-8	4,4'-DDD	0.96	JQ	2.0	0.23
72-55-9	4,4'-DDE	ND		2.0	0.37
50-29-3	4,4'-DDT	ND		2.0	0.37
60-57-1	Dieldrin	ND		2.0	0.35
959-98-8	Endosulfan I	ND		2.0	0.34
33213-65-9	Endosulfan II	ND		2.0	0.26
1031-07-8	Endosulfan sulfate	ND		2.0	0.28
72-20-8	Endrin	ND		2.0	0.47
7421-93-4	Endrin aldehyde	ND		20	4.8
76-44-8	Heptachlor	ND		3.0	0.19
1024-57-3	Heptachlor epoxide	ND		3.0	0.30
72-43-5	Methoxychlor	ND		10	0.37
53494-70-5	Endrin ketone	ND		2.0	0.42
8001-35-2	Toxaphene	ND		100	25
5103-71-9	cis-Chlordane	ND		2.0	0.75
5103-74-2	trans-Chlordane	ND		3.0	0.32

CAS NO.	SURROGATE	%REC	Q	LIMITS
877-09-8	Tetrachloro-m-xylene	52		50-123
2051-24-3	DCB Decachlorobiphenyl	59		36-136

mw 9/18/19



FORM I  
PESTICIDES ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-88245-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070179 Lab Sample ID: 580-88245-9  
 Matrix: Solid Lab File ID: 45H081719a036.D  
 Analysis Method: 8081B Date Collected: 08/07/2019 14:42  
 Extraction Method: 3546 Date Extracted: 08/15/2019 09:30  
 Sample wt/vol: 10.832(g) Date Analyzed: 08/17/2019 19:54  
 Con. Extract Vol.: 10(mL) Dilution Factor: 1  
 Injection Volume: 1(uL) GC Column: ZB-CLPest-1 ID: 0.25 (mm)  
 % Moisture: 8.2 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 308639 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
309-00-2	Aldrin	ND		3.0	0.38
319-84-6	alpha-BHC	ND		2.0	0.16
319-85-7	beta-BHC	ND		5.0	0.25
319-86-8	delta-BHC	ND		3.0	0.28
58-89-9	gamma-BHC (Lindane)	ND		2.0	0.75
72-54-8	4,4'-DDD	ND		2.0	0.23
72-55-9	4,4'-DDE	ND		2.0	0.37
50-29-3	4,4'-DDT	ND		2.0	0.37
60-57-1	Dieldrin	ND		2.0	0.35
959-98-8	Endosulfan I	ND		2.0	0.34
33213-65-9	Endosulfan II	ND		2.0	0.26
1031-07-8	Endosulfan sulfate	ND		2.0	0.28
72-20-8	Endrin	ND		2.0	0.47
7421-93-4	Endrin aldehyde	ND		20	4.8
76-44-8	Heptachlor	ND		3.0	0.19
1024-57-3	Heptachlor epoxide	ND		3.0	0.30
72-43-5	Methoxychlor	ND		10	0.37
53494-70-5	Endrin ketone	ND		2.0	0.42
8001-35-2	Toxaphene	ND		100	25
5103-71-9	cis-Chlordane	ND		2.0	0.75
5103-74-2	trans-Chlordane	ND		3.0	0.32

CAS NO.	SURROGATE	%REC	Q	LIMITS
877-09-8	Tetrachloro-m-xylene	48		50-123
2051-24-3	DCB Decachlorobiphenyl	52		36-136

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FORM I  
PCBS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-88245-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070167 Lab Sample ID: 580-88245-10  
 Matrix: Solid Lab File ID: 35H081719a044.d  
 Analysis Method: 8082A Date Collected: 08/06/2019 09:15  
 Extraction Method: 3546 Date Extracted: 08/15/2019 09:30  
 Sample wt/vol: 10.421(g) Date Analyzed: 08/17/2019 21:10  
 Con. Extract Vol.: 10 (mL) Dilution Factor: 3  
 Injection Volume: 1 (uL) GC Column: ZB-CLPest-1 ID: 0.25 (mm)  
 % Moisture: 10.7 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 308659 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
12674-11-2	PCB-1016	ND		0.064	0.024
11104-28-2	PCB-1221	ND		0.064	0.014
11141-16-5	PCB-1232	ND		0.064	0.016
53469-21-9	PCB-1242	ND		0.064	0.011
12672-29-6	PCB-1248	ND		0.064	0.0093
11097-69-1	PCB-1254	0.13		0.064	0.012
11096-82-5	PCB-1260	ND		0.064	0.024

CAS NO.	SURROGATE	%REC	Q	LIMITS
877-09-8	Tetrachloro-m-xylene	80		35-129

FORM I  
PCBS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-88245-1  
SDG No.: \_\_\_\_\_  
Client Sample ID: 19070167 Lab Sample ID: 580-88245-10  
Matrix: Solid Lab File ID: 35H081719a044.d  
Analysis Method: 8082A Date Collected: 08/06/2019 09:15  
Extraction Method: 3546 Date Extracted: 08/15/2019 09:30  
Sample wt/vol: 10.421(g) Date Analyzed: 08/17/2019 21:10  
Con. Extract Vol.: 10 (mL) Dilution Factor: 3  
Injection Volume: 1 (uL) GC Column: ZB-CLPest-2 ID: 0.25 (mm)  
% Moisture: 10.7 GPC Cleanup: (Y/N) N  
Analysis Batch No.: 308659 Units: mg/Kg

CAS NO.	SURROGATE	%REC	Q	LIMITS
2051-24-3	DCB Decachlorobiphenyl	51		39-142

*MW 9/18/19*

FORM I  
PCBS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-88245-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070168 Lab Sample ID: 580-88245-11  
 Matrix: Solid Lab File ID: 35H081719a045.d  
 Analysis Method: 8082A Date Collected: 08/06/2019 09:09  
 Extraction Method: 3546 Date Extracted: 08/15/2019 09:30  
 Sample wt/vol: 10.126(g) Date Analyzed: 08/17/2019 21:27  
 Con. Extract Vol.: 10(mL) Dilution Factor: 3  
 Injection Volume: 1(uL) GC Column: ZB-CLPest-1 ID: 0.25 (mm)  
 % Moisture: 27.9 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 308659 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
12674-11-2	PCB-1016	0.17		0.082	0.030
11104-28-2	PCB-1221	ND		0.082	0.017
11141-16-5	PCB-1232	ND		0.082	0.020
53469-21-9	PCB-1242	ND		0.082	0.014
12672-29-6	PCB-1248	ND		0.082	0.012
11097-69-1	PCB-1254	ND		0.082	0.015
11096-82-5	PCB-1260	ND		0.082	0.030

CAS NO.	SURROGATE	%REC	Q	LIMITS
2051-24-3	DCB Decachlorobiphenyl	75		39-142
877-09-8	Tetrachloro-m-xylene	88		35-129

*MW 9-18-19*



FORM I  
PCBS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-88245-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070169 Lab Sample ID: 580-88245-12  
 Matrix: Solid Lab File ID: 35H081719a046.d  
 Analysis Method: 8082A Date Collected: 08/06/2019 09:04  
 Extraction Method: 3546 Date Extracted: 08/15/2019 09:30  
 Sample wt/vol: 10.567(g) Date Analyzed: 08/17/2019 21:44  
 Con. Extract Vol.: 10(mL) Dilution Factor: 3  
 Injection Volume: 1(uL) GC Column: ZB-CLPest-1 ID: 0.25 (mm)  
 % Moisture: 14.9 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 308659 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
12674-11-2	PCB-1016	0.061	J <i>Q</i>	0.067	0.025
11104-28-2	PCB-1221	ND		0.067	0.014
11141-16-5	PCB-1232	ND		0.067	0.016
53469-21-9	PCB-1242	ND		0.067	0.012
12672-29-6	PCB-1248	ND		0.067	0.0097
11097-69-1	PCB-1254	ND		0.067	0.012
11096-82-5	PCB-1260	ND		0.067	0.025

CAS NO.	SURROGATE	%REC	Q	LIMITS
2051-24-3	DCB Decachlorobiphenyl	110		39-142
877-09-8	Tetrachloro-m-xylene	122		35-129

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Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-88245-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070170 Lab Sample ID: 580-88245-13  
 Matrix: Solid Lab File ID: 35H082319a031.d  
 Analysis Method: 8082A Date Collected: 08/06/2019 09:00  
 Extraction Method: 3546 Date Extracted: 08/19/2019 10:36  
 Sample wt/vol: 11.641(g) Date Analyzed: 08/23/2019 20:43  
 Con. Extract Vol.: 10(mL) Dilution Factor: 1  
 Injection Volume: 1(uL) GC Column: ZB-CLPest-1 ID: 0.25(mm)  
 % Moisture: 17.6 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 309178 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
12674-11-2	PCB-1016	ND		0.021	0.0077
11104-28-2	PCB-1221	ND		0.021	0.0044
11141-16-5	PCB-1232	ND		0.021	0.0051
53469-21-9	PCB-1242	ND		0.021	0.0037
12672-29-6	PCB-1248	ND		0.021	0.0030
11097-69-1	PCB-1254	ND		0.021	0.0039

CAS NO.	SURROGATE	%REC	Q	LIMITS
2051-24-3	DCB Decachlorobiphenyl	68		39-142
877-09-8	Tetrachloro-m-xylene	77		35-129

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Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-88245-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070170 Lab Sample ID: 580-88245-13  
 Matrix: Solid Lab File ID: 35H082319a031.d  
 Analysis Method: 8082A Date Collected: 08/06/2019 09:00  
 Extraction Method: 3546 Date Extracted: 08/19/2019 10:36  
 Sample wt/vol: 11.641(g) Date Analyzed: 08/23/2019 20:43  
 Con. Extract Vol.: 10 (mL) Dilution Factor: 1  
 Injection Volume: 1 (uL) GC Column: ZB-CLPest-2 ID: 0.25 (mm)  
 % Moisture: 17.6 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 309178 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
11096-82-5	PCB-1260	0.014	<u>J / Q</u> <u>mu</u>	0.021	0.0077

CAS NO.	SURROGATE	%REC	Q	LIMITS
2051-24-3	DCB Decachlorobiphenyl	40	<u>mu</u>	39-142
877-09-8	Tetrachloro-m-xylene	78		35-129

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Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-88245-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070171 Lab Sample ID: 580-88245-1  
 Matrix: Solid Lab File ID: 35H082019a028.d  
 Analysis Method: 8082A Date Collected: 08/07/2019 10:44  
 Extraction Method: 3546 Date Extracted: 08/15/2019 09:30  
 Sample wt/vol: 10.361(g) Date Analyzed: 08/20/2019 19:46  
 Con. Extract Vol.: 10(mL) Dilution Factor: 3  
 Injection Volume: 1(uL) GC Column: ZB-CLPest-1 ID: 0.25 (mm)  
 % Moisture: 25.8 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 308844 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
12674-11-2	PCB-1016	ND		0.078	0.029
11104-28-2	PCB-1221	ND		0.078	0.016
11141-16-5	PCB-1232	ND		0.078	0.019
53469-21-9	PCB-1242	ND		0.078	0.014
12672-29-6	PCB-1248	0.064	J Q	0.078	0.011
11097-69-1	PCB-1254	ND		0.078	0.014
11096-82-5	PCB-1260	ND		0.078	0.029

CAS NO.	SURROGATE	%REC	Q	LIMITS
2051-24-3	DCB Decachlorobiphenyl	79		39-142
877-09-8	Tetrachloro-m-xylene	96		35-129

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Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-88245-1  
SDG No.: \_\_\_\_\_  
Client Sample ID: 19070171 Lab Sample ID: 580-88245-1  
Matrix: Solid Lab File ID: 35H081719a028.d  
Analysis Method: 8082A Date Collected: 08/07/2019 10:44  
Extraction Method: 3546 Date Extracted: 08/15/2019 09:30  
Sample wt/vol: 10.361(g) Date Analyzed: 08/17/2019 16:39  
Con. Extract Vol.: 10(mL) Dilution Factor: 3  
Injection Volume: 1(uL) GC Column: ZB-CLPest-2 ID: 0.25(mm)  
% Moisture: 25.8 GPC Cleanup: (Y/N) N  
Analysis Batch No.: 308636 Units: mg/Kg

CAS-NO.	SURROGATE	%REC	Q	LIMITS
2051-24-3	DCB Decachlorobiphenyl	54	*	39-142
877-09-8	Tetrachloro-m-xylene	89	*	35-129

*Mw*

*Mw 8/18/19*

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Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-88245-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070172 Lab Sample ID: 580-88245-2  
 Matrix: Solid Lab File ID: 35H082019a029.d  
 Analysis Method: 8082A Date Collected: 08/07/2019 10:44  
 Extraction Method: 3546 Date Extracted: 08/15/2019 09:30  
 Sample wt/vol: 10.770(g) Date Analyzed: 08/20/2019 20:03  
 Con. Extract Vol.: 10(mL) Dilution Factor: 3  
 Injection Volume: 1(uL) GC Column: ZB-CLPest-1 ID: 0.25(mm)  
 % Moisture: 23.8 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 308844 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
12674-11-2	PCB-1016	ND		0.073	0.027
11104-28-2	PCB-1221	ND		0.073	0.015
11141-16-5	PCB-1232	ND		0.073	0.018
53469-21-9	PCB-1242	ND		0.073	0.013
12672-29-6	PCB-1248	0.040	J	0.073	0.011
11097-69-1	PCB-1254	ND		0.073	0.014
11096-82-5	PCB-1260	ND		0.073	0.027

CAS NO.	SURROGATE	%REC	Q	LIMITS
2051-24-3	DCB Decachlorobiphenyl	76		39-142
877-09-8	Tetrachloro-m-xylene	86		35-129

*mwg-8/9*

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PCBS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-88245-1  
SDG No.: \_\_\_\_\_  
Client Sample ID: 19070172 Lab Sample ID: 580-88245-2  
Matrix: Solid Lab File ID: 35H081719a029.d  
Analysis Method: 8082A Date Collected: 08/07/2019 10:44  
Extraction Method: 3546 Date Extracted: 08/15/2019 09:30  
Sample wt/vol: 10.770(g) Date Analyzed: 08/17/2019 16:56  
Con. Extract Vol.: 10(mL) Dilution Factor: 3  
Injection Volume: 1(uL) GC Column: ZB-CLPest-2 ID: 0.25(mm)  
% Moisture: 23.8 GPC Cleanup: (Y/N) N  
Analysis Batch No.: 308636 Units: mg/Kg

CAS NO.	SURROGATE	%REC	Q	LIMITS
2051-24-3	DCB Decachlorobiphenyl	72	<i>mw 8-19</i>	39-142

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Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-88245-1  
SDG No.: \_\_\_\_\_  
Client Sample ID: 19070172 Lab Sample ID: 580-88245-2  
Matrix: Solid Lab File ID: 35H081719a029.d  
Analysis Method: 8082A Date Collected: 08/07/2019 10:44  
Extraction Method: 3546 Date Extracted: 08/15/2019 09:30  
Sample wt/vol: 10.770(g) Date Analyzed: 08/17/2019 16:56  
Con. Extract Vol.: 10(mL) Dilution Factor: 3  
Injection Volume: 1(uL) GC Column: ZB-CLPest-1 ID: 0.25(mm)  
% Moisture: 23.8 GPC Cleanup: (Y/N) N  
Analysis Batch No.: 308636 Units: mg/Kg

CAS NO.	SURROGATE	%REC	Q	LIMITS
877-09-8	Tetrachloro-m-xylene	92		35-129

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Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-88245-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070173 Lab Sample ID: 580-88245-3  
 Matrix: Solid Lab File ID: 35H082019a030.d  
 Analysis Method: 8082A Date Collected: 08/07/2019 10:51  
 Extraction Method: 3546 Date Extracted: 08/15/2019 09:30  
 Sample wt/vol: 10.703(g) Date Analyzed: 08/20/2019 20:20  
 Con. Extract Vol.: 10(mL) Dilution Factor: 3  
 Injection Volume: 1(uL) GC Column: ZB-CLPest-1 ID: 0.25 (mm)  
 % Moisture: 15.1 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 308844 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
12674-11-2	PCB-1016	0.28		0.066	0.024
11104-28-2	PCB-1221	ND		0.066	0.014
11141-16-5	PCB-1232	ND		0.066	0.016
53469-21-9	PCB-1242	ND		0.066	0.012
12672-29-6	PCB-1248	ND		0.066	0.0096
11097-69-1	PCB-1254	ND		0.066	0.012
11096-82-5	PCB-1260	ND		0.066	0.024

CAS NO.	SURROGATE	%REC	Q	LIMITS
2051-24-3	DCB Decachlorobiphenyl	92		39-142
877-09-8	Tetrachloro-m-xylene	97		35-129

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Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-88245-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070174 Lab Sample ID: 580-88245-4  
 Matrix: Solid Lab File ID: 35H081719a031.d  
 Analysis Method: 8082A Date Collected: 08/07/2019 10:55  
 Extraction Method: 3546 Date Extracted: 08/15/2019 09:30  
 Sample wt/vol: 10.776(g) Date Analyzed: 08/17/2019 17:30  
 Con. Extract Vol.: 10(mL) Dilution Factor: 3  
 Injection Volume: 1(uL) GC Column: ZB-CLPest-2 ID: 0.25 (mm)  
 % Moisture: 24.7 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 308636 Units: mg/Kg

CAS NO.	SURROGATE	%REC	Q	LIMITS
2051-24-3	DCB Decachlorobiphenyl	52	*	39-142
877-09-8	Tetrachloro-m-xylene	79	*	35-129

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Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-88245-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070174 Lab Sample ID: 580-88245-4  
 Matrix: Solid Lab File ID: 35H082019a031.d  
 Analysis Method: 8082A Date Collected: 08/07/2019 10:55  
 Extraction Method: 3546 Date Extracted: 08/15/2019 09:30  
 Sample wt/vol: 10.776(g) Date Analyzed: 08/20/2019 20:37  
 Con. Extract Vol.: 10(mL) Dilution Factor: 3  
 Injection Volume: 1(uL) GC Column: ZB-CLPest-1 ID: 0.25(mm)  
 % Moisture: 24.7 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 308844 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
12674-11-2	PCB-1016	ND		0.074	0.027
11104-28-2	PCB-1221	ND		0.074	0.016
11141-16-5	PCB-1232	ND		0.074	0.018
53469-21-9	PCB-1242	ND		0.074	0.013
12672-29-6	PCB-1248	ND		0.074	0.011
11097-69-1	PCB-1254	0.030	J	0.074	0.014
11096-82-5	PCB-1260	ND		0.074	0.027

CAS NO.	SURROGATE	%REC	Q	LIMITS
2051-24-3	DCB Decachlorobiphenyl	65		39-142
877-09-8	Tetrachloro-m-xylene	76		35-129

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Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-88245-1  
SDG No.: \_\_\_\_\_  
Client Sample ID: 19070175 Lab Sample ID: 580-88245-5  
Matrix: Solid Lab File ID: 35H081719a032.d  
Analysis Method: 8082A Date Collected: 08/07/2019 11:00  
Extraction Method: 3546 Date Extracted: 08/15/2019 09:30  
Sample wt/vol: 10.927(g) Date Analyzed: 08/17/2019 17:47  
Con. Extract Vol.: 10 (mL) Dilution Factor: 3  
Injection Volume: 1 (uL) GC Column: ZB-CLPest-2 ID: 0.25 (mm)  
% Moisture: 12.5 GPC Cleanup: (Y/N) N  
Analysis Batch No.: 308636 Units: mg/Kg

CAS NO.	SURROGATE	%REC	Q	LIMITS
2051-24-3	DCB Decachlorobiphenyl	64	✓	39-142
877-09-8	Tetrachloro-m-xylene	68	✓	35-129

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Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-88245-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070175 Lab Sample ID: 580-88245-5  
 Matrix: Solid Lab File ID: 35H082019a032.d  
 Analysis Method: 8082A Date Collected: 08/07/2019 11:00  
 Extraction Method: 3546 Date Extracted: 08/15/2019 09:30  
 Sample wt/vol: 10.927(g) Date Analyzed: 08/20/2019 20:54  
 Con. Extract Vol.: 10(mL) Dilution Factor: 3  
 Injection Volume: 1(uL) GC Column: ZB-CLPest-1 ID: 0.25 (mm)  
 % Moisture: 12.5 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 308844 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
12674-11-2	PCB-1016	ND		0.063	0.023
11104-28-2	PCB-1221	ND		0.063	0.013
11141-16-5	PCB-1232	ND		0.063	0.015
53469-21-9	PCB-1242	ND		0.063	0.011
12672-29-6	PCB-1248	ND		0.063	0.0091
11097-69-1	PCB-1254	ND		0.063	0.012
11096-82-5	PCB-1260	ND		0.063	0.023

CAS NO.	SURROGATE	%REC	Q	LIMITS
2051-24-3	DCB Decachlorobiphenyl	98		39-142
877-09-8	Tetrachloro-m-xylene	79		35-129

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Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-88245-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070176 Lab Sample ID: 580-88245-6  
 Matrix: Solid Lab File ID: 35H081719a033.d  
 Analysis Method: 8082A Date Collected: 08/07/2019 11:05  
 Extraction Method: 3546 Date Extracted: 08/15/2019 09:30  
 Sample wt/vol: 10.180(g) Date Analyzed: 08/17/2019 18:04  
 Con. Extract Vol.: 10(mL) Dilution Factor: 3  
 Injection Volume: 1(uL) GC Column: ZB-CLPest-2 ID: 0.25(mm)  
 % Moisture: 10.8 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 308636 Units: mg/Kg

CAS NO.	SURROGATE	%REC	Q	LIMITS
2051-24-3	DCB Decachlorobiphenyl	58	p	39-142
877-09-8	Tetrachloro-m-xylene	174	* X	35-129

*Mw*

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Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-88245-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070176 Lab Sample ID: 580-88245-6  
 Matrix: Solid Lab File ID: 35H082019a033.d  
 Analysis Method: 8082A Date Collected: 08/07/2019 11:05  
 Extraction Method: 3546 Date Extracted: 08/15/2019 09:30  
 Sample wt/vol: 10.180(g) Date Analyzed: 08/20/2019 21:10  
 Con. Extract Vol.: 10(mL) Dilution Factor: 3  
 Injection Volume: 1(uL) GC Column: ZB-CLPest-1 ID: 0.25(mm)  
 % Moisture: 10.8 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 308844 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
12674-11-2	PCB-1016	ND		0.066	0.024
11104-28-2	PCB-1221	ND		0.066	0.014
11141-16-5	PCB-1232	ND		0.066	0.016
53469-21-9	PCB-1242	ND		0.066	0.012
12672-29-6	PCB-1248	ND		0.066	0.0096
11097-69-1	PCB-1254	0.056	JQ	0.066	0.012
11096-82-5	PCB-1260	ND		0.066	0.024

CAS NO.	SURROGATE	%REC	Q	LIMITS
2051-24-3	DCB Decachlorobiphenyl	97		39-142
877-09-8	Tetrachloro-m-xylene	102		35-129

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Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-88245-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070177 Lab Sample ID: 580-88245-7  
 Matrix: Solid Lab File ID: 35H081719a041.d  
 Analysis Method: 8082A Date Collected: 08/07/2019 11:10  
 Extraction Method: 3546 Date Extracted: 08/15/2019 09:30  
 Sample wt/vol: 10.309(g) Date Analyzed: 08/17/2019 20:19  
 Con. Extract Vol.: 10(mL) Dilution Factor: 3  
 Injection Volume: 1(uL) GC Column: ZB-CLPest-1 ID: 0.25 (mm)  
 % Moisture: 10.7 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 308659 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
12674-11-2	PCB-1016	ND		0.065	0.024
11104-28-2	PCB-1221	ND		0.065	0.014
11141-16-5	PCB-1232	ND		0.065	0.016
53469-21-9	PCB-1242	ND		0.065	0.011
12672-29-6	PCB-1248	ND		0.065	0.0094
11097-69-1	PCB-1254	ND		0.065	0.012
11096-82-5	PCB-1260	ND		0.065	0.024

CAS NO.	SURROGATE	%REC	Q	LIMITS
877-09-8	Tetrachloro-m-xylene	87		35-129

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Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-88245-1  
SDG No.: \_\_\_\_\_  
Client Sample ID: 19070177 Lab Sample ID: 580-88245-7  
Matrix: Solid Lab File ID: 35H081719a041.d  
Analysis Method: 8082A Date Collected: 08/07/2019 11:10  
Extraction Method: 3546 Date Extracted: 08/15/2019 09:30  
Sample wt/vol: 10.309(g) Date Analyzed: 08/17/2019 20:19  
Con. Extract Vol.: 10(mL) Dilution Factor: 3  
Injection Volume: 1(uL) GC Column: ZB-CLPest-2 ID: 0.25(mm)  
% Moisture: 10.7 GPC Cleanup: (Y/N) N  
Analysis Batch No.: 308659 Units: mg/Kg

CAS NO.	SURROGATE	%REC	Q	LIMITS
2051-24-3	DCB Decachlorobiphenyl	59		39-142

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Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-88245-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070178 Lab Sample ID: 580-88245-8  
 Matrix: Solid Lab File ID: 35H081719a042.d  
 Analysis Method: 8082A Date Collected: 08/07/2019 14:29  
 Extraction Method: 3546 Date Extracted: 08/15/2019 09:30  
 Sample wt/vol: 10.909(g) Date Analyzed: 08/17/2019 20:36  
 Con. Extract Vol.: 10 (mL) Dilution Factor: 3  
 Injection Volume: 1 (uL) GC Column: ZB-CLPest-1 ID: 0.25 (mm)  
 % Moisture: 8.9 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 308659 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
12674-11-2	PCB-1016	ND		0.060	0.022
11104-28-2	PCB-1221	ND		0.060	0.013
11141-16-5	PCB-1232	ND		0.060	0.015
53469-21-9	PCB-1242	ND		0.060	0.011
12672-29-6	PCB-1248	ND		0.060	0.0088
11097-69-1	PCB-1254	ND		0.060	0.011
11096-82-5	PCB-1260	ND		0.060	0.022

CAS NO.	SURROGATE	%REC	Q	LIMITS
877-09-8	Tetrachloro-m-xylene	79		35-129

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Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-88245-1  
SDG No.: \_\_\_\_\_  
Client Sample ID: 19070178 Lab Sample ID: 580-88245-8  
Matrix: Solid Lab File ID: 35H081719a042.d  
Analysis Method: 8082A Date Collected: 08/07/2019 14:29  
Extraction Method: 3546 Date Extracted: 08/15/2019 09:30  
Sample wt/vol: 10.909(g) Date Analyzed: 08/17/2019 20:36  
Con. Extract Vol.: 10(mL) Dilution Factor: 3  
Injection Volume: 1(uL) GC Column: ZB-CLPest-2 ID: 0.25 (mm)  
% Moisture: 8.9 GPC Cleanup: (Y/N) N  
Analysis Batch No.: 308659 Units: mg/Kg

CAS NO.	SURROGATE	%REC	Q	LIMITS
2051-24-3	DCB Decachlorobiphenyl	60		39-142

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PCBS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-88245-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070179 Lab Sample ID: 580-88245-9  
 Matrix: Solid Lab File ID: 35H081719a043.d  
 Analysis Method: 8082A Date Collected: 08/07/2019 14:42  
 Extraction Method: 3546 Date Extracted: 08/15/2019 09:30  
 Sample wt/vol: 10.832(g) Date Analyzed: 08/17/2019 20:53  
 Con. Extract Vol.: 10(mL) Dilution Factor: 3  
 Injection Volume: 1(uL) GC Column: ZB-CLPest-1 ID: 0.25(mm)  
 % Moisture: 8.2 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 308659 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
12674-11-2	PCB-1016	ND		0.060	0.022
11104-28-2	PCB-1221	ND		0.060	0.013
11141-16-5	PCB-1232	ND		0.060	0.015
53469-21-9	PCB-1242	ND		0.060	0.011
12672-29-6	PCB-1248	ND		0.060	0.0087
11097-69-1	PCB-1254	0.012	J	0.060	0.011
11096-82-5	PCB-1260	ND		0.060	0.022

CAS NO.	SURROGATE	%REC	Q	LIMITS
877-09-8	Tetrachloro-m-xylene	102		35-129

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Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-88245-1  
SDG No.: \_\_\_\_\_  
Client Sample ID: 19070179 Lab Sample ID: 580-88245-9  
Matrix: Solid Lab File ID: 35H081719a043.d  
Analysis Method: 8082A Date Collected: 08/07/2019 14:42  
Extraction Method: 3546 Date Extracted: 08/15/2019 09:30  
Sample wt/vol: 10.832(g) Date Analyzed: 08/17/2019 20:53  
Con. Extract Vol.: 10(mL) Dilution Factor: 3  
Injection Volume: 1(uL) GC Column: ZB-CLPest-2 ID: 0.25(mm)  
% Moisture: 8.2 GPC Cleanup: (Y/N) N  
Analysis Batch No.: 308659 Units: mg/Kg

CAS NO.	SURROGATE	%REC	Q	LIMITS
2051-24-3	DCB Decachlorobiphenyl	75		39-142

MW 9-18-19





## ecology and environment, inc.

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### MEMORANDUM

DATE: September 18, 2019

TO: Seth Wing, START-IV Project Manager, E & E, Seattle, WA

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington MW

SUBJ: **Organic Data Quality Assurance Review, May Creek Removal Action Site, Renton, Washington**

REF: TO: TO-68HE0718F0470 PAN: 1004530.0470.001.01

The data quality assurance review of 9 soil samples collected from the May Creek Removal Action site in Renton, Washington, has been completed. Semivolatile Organic Compound (SVOC) analysis (EPA Method 8270) was performed by Test America, Inc., Tacoma, Washington. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Manual Process (S2B/4VM).

The samples were numbered:

19070171	19070172	19070173	19070174	19070175
19070176	19070177	19070178	19070179	

#### Data Qualifications:

##### **1. Sample Holding Times: Acceptable.**

The samples were maintained and received within the QC limits of 0°C to 6°C. The samples were collected on August 6 and 7, 2019, were extracted by August 12, 2019, and were analyzed by August 23, 2019, therefore meeting holding time criteria of less than 14 days between collection and extraction and less than 40 days between extraction and analysis.

##### **2. Tuning: Acceptable.**

Tuning was performed at the beginning of each 12-hour analysis sequence. All results were within QC limits.

##### **3. Initial Calibration: Satisfactory.**

All average Relative Response Factors (RRFs) were within the QC limits except n-nitroso-di-n-propylamine; associated reporting limits were rejected (R). All Relative Standard Deviations (RSDs) were within the QC limits.

##### **4. Continuing Calibration: Satisfactory.**

All RRFs were within the QC limits except n-nitroso-di-n-propylamine; no additional actions were taken. All % differences were within the QC limits except some high outliers; no actions were taken as these analytes were not detected or were detected below the reporting limit in the associated samples.

**5. Blanks: Acceptable.**

A method blank was analyzed for each 20 sample batch per matrix. There were no detections in any method blank.

**6. System Monitoring Compounds (SMCs): Satisfactory.**

All SMC recoveries were within QC limits except one low outlier in the method blank and in sample 19070173; no actions were taken matrix interference occurred and the other SMCs in those samples were within QC limits.

**7. Blank Spike (BS) Analysis: Satisfactory.**

BS analysis was performed per SDG or per matrix per concentration level, whichever was more frequent. All recoveries were within QC limits except a high carbazole result; no actions were taken as carbazole was not detected in the associated samples.

**8. Internal Standards: Acceptable.**

All internal standards (IS) were within  $\pm 30$  seconds of the continuing calibration IS retention times. All area counts were within 50 % to 200 % of the continuing calibration area counts.

**9. Overall Assessment of Data for Use**

A total of 603 results were validated in this data memorandum. No sample results were qualified as estimated quantities (J) based on spike accuracy outliers, holding time outliers, incorrect sample containers, or sample temperature outliers. No analytes were detected in the method blank. Nine sample results were rejected (R).

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the analytical method(s), the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, and/or the Office of Emergency and Remedial Response Publication "National Functional Guidelines for Superfund Organic Methods Data Review, January 2017". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

H - The sample result is biased high.

J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

K - The bias of the sample is not known.

L - The sample result is biased low.

N - The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification".

NJ - The analyte has been "tentatively identified" or "presumptively" as present and the associated numerical value is the estimated concentration in the sample.

- Q - Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.
- R - The data is rejected and unusable. The analyte may or may not be present in the sample.
- U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.



FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-88245-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070171

Lab Sample ID: 580-88245-1

Matrix: Solid

Lab File ID: 40scan081319A013.D

Analysis Method: 8270D

Date Collected: 08/07/2019 10:44

Extract. Method: 3550B

Date Extracted: 08/12/2019 09:07

Sample wt/vol: 10.955(g)

Date Analyzed: 08/13/2019 14:30

Con. Extract Vol.: 10(mL)

Dilution Factor: 10

Injection Volume: 1(uL)

Level: (low/med) Low

% Moisture: 25.8

GPC Cleanup: (Y/N) N

Analysis Batch No.: 308192

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
108-95-2	Phenol	ND		1800	280
111-44-4	Bis(2-chloroethyl)ether	ND		1200	95
95-57-8	2-Chlorophenol	ND		2500	160
541-73-1	1,3-Dichlorobenzene	ND		610	59
106-46-7	1,4-Dichlorobenzene	ND		610	100
100-51-6	Benzyl alcohol	ND		6100	950
95-50-1	1,2-Dichlorobenzene	ND		610	150
95-48-7	2-Methylphenol	ND		1800	120
15831-10-4	3 & 4 Methylphenol	ND		2500	180
621-64-7	N-Nitrosodi-n-propylamine	ND		2500	270
67-72-1	Hexachloroethane	ND		1800	110
98-95-3	Nitrobenzene	ND		2500	250
78-59-1	Isophorone	ND		1800	91
88-75-5	2-Nitrophenol	ND		2500	260
105-67-9	2,4-Dimethylphenol	ND		1200	180
65-85-0	Benzoic acid	ND		25000	7100
111-91-1	Bis(2-chloroethoxy)methane	ND		2500	220
120-83-2	2,4-Dichlorophenol	ND		1200	180
120-82-1	1,2,4-Trichlorobenzene	ND		610	74
91-20-3	Naphthalene	ND		310	61
106-47-8	4-Chloroaniline	ND		18000	4900
87-68-3	Hexachlorobutadiene	ND		610	180
59-50-7	4-Chloro-3-methylphenol	ND		1800	410
91-57-6	2-Methylnaphthalene	ND		610	110
77-47-4	Hexachlorocyclopentadiene	ND		1200	250
88-06-2	2,4,6-Trichlorophenol	ND		1800	440
95-95-4	2,4,5-Trichlorophenol	ND		2500	550
91-58-7	2-Chloronaphthalene	ND		310	61
88-74-4	2-Nitroaniline	ND		1200	180
131-11-3	Dimethyl phthalate	ND		1800	160
208-96-8	Acenaphthylene	ND		310	61
606-20-2	2,6-Dinitrotoluene	ND		1800	420
99-09-2	3-Nitroaniline	ND		2500	490
83-32-9	Acenaphthene	ND		310	61

FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-88245-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070171

Lab Sample ID: 580-88245-1

Matrix: Solid

Lab File ID: 40scan081319A013.D

Analysis Method: 8270D

Date Collected: 08/07/2019 10:44

Extract. Method: 3550B

Date Extracted: 08/12/2019 09:07

Sample wt/vol: 10.955(g)

Date Analyzed: 08/13/2019 14:30

Con. Extract Vol.: 10(mL)

Dilution Factor: 10

Injection Volume: 1(uL)

Level: (low/med) Low

% Moisture: 25.8

GPC Cleanup: (Y/N) N

Analysis Batch No.: 308192

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
51-28-5	2,4-Dinitrophenol	ND		12000	2500
100-02-7	4-Nitrophenol	ND		18000	4500
132-64-9	Dibenzofuran	ND		1800	73
121-14-2	2,4-Dinitrotoluene	ND		2500	530
84-66-2	Diethyl phthalate	ND		18000	930
7005-72-3	4-Chlorophenyl phenyl ether	ND		2500	77
86-73-7	Fluorene	ND		310	61
100-01-6	4-Nitroaniline	ND		1800	610
534-52-1	4,6-Dinitro-2-methylphenol	ND		12000	1200
86-30-6	N-Nitrosodiphenylamine	ND		740	98
101-55-3	4-Bromophenyl phenyl ether	ND		2500	110
118-74-1	Hexachlorobenzene	ND		610	180
87-86-5	Pentachlorophenol	ND		5500	1600
85-01-8	Phenanthrene	ND		740	150
120-12-7	Anthracene	71	JG	310	61
84-74-2	Di-n-butyl phthalate	ND		6100	700
206-44-0	Fluoranthene	200	JG	310	61
129-00-0	Pyrene	190	JG	740	79
85-68-7	Butyl benzyl phthalate	7800		2500	630
91-94-1	3,3'-Dichlorobenzidine	ND		4900	1200
56-55-3	Benzo[a]anthracene	84	JG	310	61
218-01-9	Chrysene	ND		740	160
117-81-7	Bis(2-ethylhexyl) phthalate	950	JG	7400	870
117-84-0	Di-n-octyl phthalate	ND		1800	700
50-32-8	Benzo[a]pyrene	ND		740	160
193-39-5	Indeno[1,2,3-cd]pyrene	ND		490	61
53-70-3	Dibenz(a,h)anthracene	ND		610	150
191-24-2	Benzo[g,h,i]perylene	ND		740	110
86-74-8	Carbazole	ND		1800	100
90-12-0	1-Methylnaphthalene	ND		370	61
205-99-2	Benzo[b]fluoranthene	ND		310	61
207-08-9	Benzo[k]fluoranthene	ND		740	170
108-60-1	bis(chloroisopropyl) ether	ND		2500	170

FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-88245-1  
SDG No.: \_\_\_\_\_  
Client Sample ID: 19070171 Lab Sample ID: 580-88245-1  
Matrix: Solid Lab File ID: 40scan081319A013.D  
Analysis Method: 8270D Date Collected: 08/07/2019 10:44  
Extract. Method: 3550B Date Extracted: 08/12/2019 09:07  
Sample wt/vol: 10.955(g) Date Analyzed: 08/13/2019 14:30  
Con. Extract Vol.: 10(mL) Dilution Factor: 10  
Injection Volume: 1(uL) Level: (low/med) Low  
% Moisture: 25.8 GPC Cleanup: (Y/N) N  
Analysis Batch No.: 308192 Units: ug/Kg

CAS NO.	SURROGATE	%REC	Q	LIMITS
367-12-4	2-Fluorophenol (Surr)	79		60-125
4165-62-2	Phenol-d5 (Surr)	67		59-120
4165-60-0	Nitrobenzene-d5 (Surr)	85		62-120
321-60-8	2-Fluorobiphenyl	83		57-120
118-79-6	2,4,6-Tribromophenol (Surr)	68		52-125
1718-51-0	Terphenyl-d14 (Surr)	95		58-120

*Mw 08/19*

FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-88245-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070172 Lab Sample ID: 580-88245-2  
 Matrix: Solid Lab File ID: 40scan081319A014.D  
 Analysis Method: 8270D Date Collected: 08/07/2019 10:44  
 Extract. Method: 3550B Date Extracted: 08/12/2019 09:07  
 Sample wt/vol: 10.339(g) Date Analyzed: 08/13/2019 14:53  
 Con. Extract Vol.: 10(mL) Dilution Factor: 10  
 Injection Volume: 1(uL) Level: (low/med) Low  
 % Moisture: 23.8 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 308192 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
108-95-2	Phenol	ND		1900	290
111-44-4	Bis(2-chloroethyl) ether	ND		1300	98
95-57-8	2-Chlorophenol	ND		2500	160
541-73-1	1,3-Dichlorobenzene	ND		630	61
106-46-7	1,4-Dichlorobenzene	ND		630	110
100-51-6	Benzyl alcohol	ND		6300	980
95-50-1	1,2-Dichlorobenzene	ND		630	150
95-48-7	2-Methylphenol	ND		1900	120
15831-10-4	3 & 4 Methylphenol	ND		2500	190
621-64-7	N-Nitrosodi-n-propylamine	ND		2500	280
67-72-1	Hexachloroethane	ND		1900	110
98-95-3	Nitrobenzene	ND		2500	250
78-59-1	Isophorone	ND		1900	94
88-75-5	2-Nitrophenol	ND		2500	270
105-67-9	2,4-Dimethylphenol	ND		1300	190
65-85-0	Benzoic acid	ND		25000	7300
111-91-1	Bis(2-chloroethoxy)methane	ND		2500	230
120-83-2	2,4-Dichlorophenol	ND		1300	190
120-82-1	1,2,4-Trichlorobenzene	ND		630	76
91-20-3	Naphthalene	ND		320	63
106-47-8	4-Chloroaniline	ND		19000	5100
87-68-3	Hexachlorobutadiene	ND		630	190
59-50-7	4-Chloro-3-methylphenol	ND		1900	420
91-57-6	2-Methylnaphthalene	ND		630	110
77-47-4	Hexachlorocyclopentadiene	ND		1300	250
88-06-2	2,4,6-Trichlorophenol	ND		1900	460
95-95-4	2,4,5-Trichlorophenol	ND		2500	570
91-58-7	2-Chloronaphthalene	ND		320	63
88-74-4	2-Nitroaniline	ND		1300	190
131-11-3	Dimethyl phthalate	ND		1900	160
208-96-8	Acenaphthylene	ND		320	63
606-20-2	2,6-Dinitrotoluene	ND		1900	430
99-09-2	3-Nitroaniline	ND		2500	510
83-32-9	Acenaphthene	ND		320	63

FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-88245-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070172

Lab Sample ID: 580-88245-2

Matrix: Solid

Lab File ID: 40scan081319A014.D

Analysis Method: 8270D

Date Collected: 08/07/2019 10:44

Extract. Method: 3550B

Date Extracted: 08/12/2019 09:07

Sample wt/vol: 10.339(g)

Date Analyzed: 08/13/2019 14:53

Con. Extract Vol.: 10(mL)

Dilution Factor: 10

Injection Volume: 1(uL)

Level: (low/med) Low

% Moisture: 23.8

GPC Cleanup: (Y/N) N

Analysis Batch No.: 308192

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
51-28-5	2,4-Dinitrophenol	ND		13000	2500
100-02-7	4-Nitrophenol	ND		19000	4700
132-64-9	Dibenzofuran	ND		1900	75
121-14-2	2,4-Dinitrotoluene	ND		2500	550
84-66-2	Diethyl phthalate	ND		19000	960
7005-72-3	4-Chlorophenyl phenyl ether	ND		2500	80
86-73-7	Fluorene	ND		320	63
100-01-6	4-Nitroaniline	ND		1900	630
534-52-1	4,6-Dinitro-2-methylphenol	ND		13000	1300
86-30-6	N-Nitrosodiphenylamine	ND		760	100
101-55-3	4-Bromophenyl phenyl ether	ND		2500	120
118-74-1	Hexachlorobenzene	ND		630	190
87-86-5	Pentachlorophenol	ND		5700	1700
85-01-8	Phenanthrene	ND		760	150
120-12-7	Anthracene	ND		320	63
84-74-2	Di-n-butyl phthalate	ND		6300	720
206-44-0	Fluoranthene	150	J	320	63
129-00-0	Pyrene	180	J	760	81
85-68-7	Butyl benzyl phthalate	ND		2500	650
91-94-1	3,3'-Dichlorobenzidine	ND		5100	1300
56-55-3	Benzo[a]anthracene	ND		320	63
218-01-9	Chrysene	ND		760	160
117-81-7	Bis(2-ethylhexyl) phthalate	960	J	7600	900
117-84-0	Di-n-octyl phthalate	ND		1900	720
50-32-8	Benzo[a]pyrene	ND		760	160
193-39-5	Indeno[1,2,3-cd]pyrene	ND		510	63
53-70-3	Dibenz(a,h)anthracene	ND		630	150
191-24-2	Benzo[g,h,i]perylene	190	J	760	110
86-74-8	Carbazole	ND		1900	100
90-12-0	1-Methylnaphthalene	ND		380	63
205-99-2	Benzo[b]fluoranthene	ND		320	63
207-08-9	Benzo[k]fluoranthene	ND		760	180
108-60-1	bis(chloroisopropyl) ether	ND		2500	180

FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-88245-1  
SDG No.: \_\_\_\_\_  
Client Sample ID: 19070172 Lab Sample ID: 580-88245-2  
Matrix: Solid Lab File ID: 40scan081319A014.D  
Analysis Method: 8270D Date Collected: 08/07/2019 10:44  
Extract. Method: 3550B Date Extracted: 08/12/2019 09:07  
Sample wt/vol: 10.339(g) Date Analyzed: 08/13/2019 14:53  
Con. Extract Vol.: 10(mL) Dilution Factor: 10  
Injection Volume: 1(uL) Level: (low/med) Low  
% Moisture: 23.8 GPC Cleanup: (Y/N) N  
Analysis Batch No.: 308192 Units: ug/Kg

CAS NO.	SURROGATE	%REC	Q	LIMITS
367-12-4	2-Fluorophenol (Surr)	78		60-125
4165-62-2	Phenol-d5 (Surr)	73		59-120
4165-60-0	Nitrobenzene-d5 (Surr)	86		62-120
321-60-8	2-Fluorobiphenyl	97		57-120
118-79-6	2,4,6-Tribromophenol (Surr)	63		52-125
1718-51-0	Terphenyl-d14 (Surr)	92		58-120

*Handwritten signature and date: 9-18-19*

FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-88245-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070173

Lab Sample ID: 580-88245-3

Matrix: Solid

Lab File ID: 40scan081319A015.D

Analysis Method: 8270D

Date Collected: 08/07/2019 10:51

Extract. Method: 3550B

Date Extracted: 08/12/2019 09:07

Sample wt/vol: 10.301(g)

Date Analyzed: 08/13/2019 15:17

Con. Extract Vol.: 10(mL)

Dilution Factor: 25

Injection Volume: 1(uL)

Level: (low/med) Low

% Moisture: 15.1

GPC Cleanup: (Y/N) N

Analysis Batch No.: 308192

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
108-95-2	Phenol	ND		4300	660
111-44-4	Bis(2-chloroethyl) ether	ND		2900	220
95-57-8	2-Chlorophenol	ND		5700	370
541-73-1	1,3-Dichlorobenzene	ND		1400	140
106-46-7	1,4-Dichlorobenzene	ND		1400	240
100-51-6	Benzyl alcohol	ND		14000	2200
95-50-1	1,2-Dichlorobenzene	ND		1400	340
95-48-7	2-Methylphenol	ND		4300	280
15831-10-4	3 & 4 Methylphenol	ND		5700	430
621-64-7	N-Nitrosodi-n-propylamine	ND		5700	630
67-72-1	Hexachloroethane	ND		4300	250
98-95-3	Nitrobenzene	ND		5700	570
78-59-1	Isophorone	ND		4300	210
88-75-5	2-Nitrophenol	ND		5700	600
105-67-9	2,4-Dimethylphenol	ND		2900	430
65-85-0	Benzoic acid	ND		57000	17000
111-91-1	Bis(2-chloroethoxy)methane	ND		5700	510
120-83-2	2,4-Dichlorophenol	ND		2900	430
120-82-1	1,2,4-Trichlorobenzene	ND		1400	170
91-20-3	Naphthalene	ND		710	140
106-47-8	4-Chloroaniline	ND		43000	11000
87-68-3	Hexachlorobutadiene	ND		1400	430
59-50-7	4-Chloro-3-methylphenol	ND		4300	940
91-57-6	2-Methylnaphthalene	ND		1400	250
77-47-4	Hexachlorocyclopentadiene	ND		2900	570
88-06-2	2,4,6-Trichlorophenol	ND		4300	1000
95-95-4	2,4,5-Trichlorophenol	ND		5700	1300
91-58-7	2-Chloronaphthalene	ND		710	140
88-74-4	2-Nitroaniline	ND		2900	430
131-11-3	Dimethyl phthalate	ND		4300	370
208-96-8	Acenaphthylene	ND		710	140
606-20-2	2,6-Dinitrotoluene	ND		4300	970
99-09-2	3-Nitroaniline	ND		5700	1100
83-32-9	Acenaphthene	ND		710	140

FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-88245-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070173

Lab Sample ID: 580-88245-3

Matrix: Solid

Lab File ID: 40scan081319A015.D

Analysis Method: 8270D

Date Collected: 08/07/2019 10:51

Extract. Method: 3550B

Date Extracted: 08/12/2019 09:07

Sample wt/vol: 10.301(g)

Date Analyzed: 08/13/2019 15:17

Con. Extract Vol.: 10(mL)

Dilution Factor: 25

Injection Volume: 1(uL)

Level: (low/med) Low

% Moisture: 15.1

GPC Cleanup: (Y/N) N

Analysis Batch No.: 308192

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
51-28-5	2,4-Dinitrophenol	ND		29000	5700
100-02-7	4-Nitrophenol	ND		43000	11000
132-64-9	Dibenzofuran	ND		4300	170
121-14-2	2,4-Dinitrotoluene	ND		5700	1200
84-66-2	Diethyl phthalate	ND		43000	2200
7005-72-3	4-Chlorophenyl phenyl ether	ND		5700	180
86-73-7	Fluorene	ND		710	140
100-01-6	4-Nitroaniline	ND		4300	1400
534-52-1	4,6-Dinitro-2-methylphenol	ND		29000	2900
86-30-6	N-Nitrosodiphenylamine	ND		1700	230
101-55-3	4-Bromophenyl phenyl ether	ND		5700	260
118-74-1	Hexachlorobenzene	ND		1400	430
87-86-5	Pentachlorophenol	ND		13000	3800
85-01-8	Phenanthrene	ND		1700	340
120-12-7	Anthracene	ND		710	140
84-74-2	Di-n-butyl phthalate	ND		14000	1600
206-44-0	Fluoranthene	ND		710	140
129-00-0	Pyrene	210	JQ	1700	180
85-68-7	Butyl benzyl phthalate	ND		5700	1500
91-94-1	3,3'-Dichlorobenzidine	ND		11000	2900
56-55-3	Benzo[a]anthracene	ND		710	140
218-01-9	Chrysene	ND		1700	370
117-81-7	Bis(2-ethylhexyl) phthalate	ND		17000	2000
117-84-0	Di-n-octyl phthalate	ND		4300	1600
50-32-8	Benzo[a]pyrene	ND		1700	370
193-39-5	Indeno[1,2,3-cd]pyrene	ND		1100	140
53-70-3	Dibenz(a,h)anthracene	ND		1400	340
191-24-2	Benzo[g,h,i]perylene	ND		1700	260
86-74-8	Carbazole	ND		4300	230
90-12-0	1-Methylnaphthalene	ND		860	140
205-99-2	Benzo[b]fluoranthene	ND		710	140
207-08-9	Benzo[k]fluoranthene	ND		1700	400
108-60-1	bis(chloroisopropyl) ether	ND		5700	400



FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-88245-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070173 Lab Sample ID: 580-88245-3  
 Matrix: Solid Lab File ID: 40scan081319A015.D  
 Analysis Method: 8270D Date Collected: 08/07/2019 10:51  
 Extract. Method: 3550B Date Extracted: 08/12/2019 09:07  
 Sample wt/vol: 10.301(g) Date Analyzed: 08/13/2019 15:17  
 Con. Extract Vol.: 10(mL) Dilution Factor: 25  
 Injection Volume: 1(uL) Level: (low/med) Low  
 % Moisture: 15.1 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 308192 Units: ug/Kg

CAS NO.	SURROGATE	%REC	Q	LIMITS
367-12-4	2-Fluorophenol (Surr)	74		60-125
4165-62-2	Phenol-d5 (Surr)	61		59-120
4165-60-0	Nitrobenzene-d5 (Surr)	96		62-120
321-60-8	2-Fluorobiphenyl	83		57-120
118-79-6	2,4,6-Tribromophenol (Surr)	44		52-125
1718-51-0	Terphenyl-d14 (Surr)	111		58-120

*MW 5/8/19*

FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-88245-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070174

Lab Sample ID: 580-88245-4

Matrix: Solid

Lab File ID: 40scan081319A016.D

Analysis Method: 8270D

Date Collected: 08/07/2019 10:55

Extract. Method: 3550B

Date Extracted: 08/12/2019 09:07

Sample wt/vol: 11.310(g)

Date Analyzed: 08/13/2019 15:41

Con. Extract Vol.: 10(mL)

Dilution Factor: 10

Injection Volume: 1(uL)

Level: (low/med) Low

% Moisture: 24.7

GPC Cleanup: (Y/N) N

Analysis Batch No.: 308192

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
108-95-2	Phenol	ND		1800	270
111-44-4	Bis(2-chloroethyl)ether	ND		1200	90
95-57-8	2-Chlorophenol	ND		2300	150
541-73-1	1,3-Dichlorobenzene	ND		590	56
106-46-7	1,4-Dichlorobenzene	ND		590	97
100-51-6	Benzyl alcohol	ND		5900	900
95-50-1	1,2-Dichlorobenzene	ND		590	140
95-48-7	2-Methylphenol	ND		1800	120
15831-10-4	3 & 4 Methylphenol	ND		2300	180
621-64-7	N-Nitrosodi-n-propylamine	ND		2300	260
67-72-1	Hexachloroethane	ND		1800	100
98-95-3	Nitrobenzene	ND		2300	230
78-59-1	Isophorone	ND		1800	87
88-75-5	2-Nitrophenol	ND		2300	250
105-67-9	2,4-Dimethylphenol	ND		1200	180
65-85-0	Benzoic acid	ND		23000	6800
111-91-1	Bis(2-chloroethoxy)methane	ND		2300	210
120-83-2	2,4-Dichlorophenol	ND		1200	180
120-82-1	1,2,4-Trichlorobenzene	ND		590	70
91-20-3	Naphthalene	ND		290	59
106-47-8	4-Chloroaniline	ND		18000	4700
87-68-3	Hexachlorobutadiene	ND		590	180
59-50-7	4-Chloro-3-methylphenol	ND		1800	390
91-57-6	2-Methylnaphthalene	ND		590	100
77-47-4	Hexachlorocyclopentadiene	ND		1200	230
88-06-2	2,4,6-Trichlorophenol	ND		1800	420
95-95-4	2,4,5-Trichlorophenol	ND		2300	530
91-58-7	2-Chloronaphthalene	ND		290	59
88-74-4	2-Nitroaniline	ND		1200	180
131-11-3	Dimethyl phthalate	ND		1800	150
208-96-8	Acenaphthylene	ND		290	59
606-20-2	2,6-Dinitrotoluene	ND		1800	400
99-09-2	3-Nitroaniline	ND		2300	470
83-32-9	Acenaphthene	170	J	290	59

*MW 9-18-19*

FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-88245-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070174

Lab Sample ID: 580-88245-4

Matrix: Solid

Lab File ID: 40scan081319A016.D

Analysis Method: 8270D

Date Collected: 08/07/2019 10:55

Extract. Method: 3550B

Date Extracted: 08/12/2019 09:07

Sample wt/vol: 11.310(g)

Date Analyzed: 08/13/2019 15:41

Con. Extract Vol.: 10(mL)

Dilution Factor: 10

Injection Volume: 1(uL)

Level: (low/med) Low

% Moisture: 24.7

GPC Cleanup: (Y/N) N

Analysis Batch No.: 308192

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
51-28-5	2,4-Dinitrophenol	ND		12000	2300
100-02-7	4-Nitrophenol	ND		18000	4300
132-64-9	Dibenzofuran	ND		1800	69
121-14-2	2,4-Dinitrotoluene	ND		2300	500
84-66-2	Diethyl phthalate	ND		18000	890
7005-72-3	4-Chlorophenyl phenyl ether	ND		2300	74
86-73-7	Fluorene	140	J Q	290	59
100-01-6	4-Nitroaniline	ND		1800	590
534-52-1	4,6-Dinitro-2-methylphenol	ND		12000	1200
86-30-6	N-Nitrosodiphenylamine	ND		700	94
101-55-3	4-Bromophenyl phenyl ether	ND		2300	110
118-74-1	Hexachlorobenzene	ND		590	180
87-86-5	Pentachlorophenol	ND		5300	1500
85-01-8	Phenanthrene	1400		700	140
120-12-7	Anthracene	380		290	59
84-74-2	Di-n-butyl phthalate	ND		5900	670
206-44-0	Fluoranthene	2400		290	59
129-00-0	Pyrene	2400		700	75
85-68-7	Butyl benzyl phthalate	ND		2300	600
91-94-1	3,3'-Dichlorobenzidine	ND		4700	1200
56-55-3	Benzo[a]anthracene	770		290	59
218-01-9	Chrysene	970		700	150
117-81-7	Bis(2-ethylhexyl) phthalate	ND		7000	830
117-84-0	Di-n-octyl phthalate	ND		1800	670
50-32-8	Benzo[a]pyrene	840		700	150
53-70-3	Dibenz(a,h)anthracene	ND		590	140
191-24-2	Benzo[g,h,i]perylene	460	J Q	700	110
86-74-8	Carbazole	ND		1800	96
90-12-0	1-Methylnaphthalene	ND		350	59
205-99-2	Benzo[b]fluoranthene	1200		290	59
207-08-9	Benzo[k]fluoranthene	460	J Q	700	160
108-60-1	bis(chloroisopropyl) ether	ND		2300	160

*mw 9/18/19*

FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-88245-1  
SDG No.: \_\_\_\_\_  
Client Sample ID: 19070174 Lab Sample ID: 580-88245-4  
Matrix: Solid Lab File ID: 40scan081319A016.D  
Analysis Method: 8270D Date Collected: 08/07/2019 10:55  
Extract. Method: 3550B Date Extracted: 08/12/2019 09:07  
Sample wt/vol: 11.310(g) Date Analyzed: 08/13/2019 15:41  
Con. Extract Vol.: 10(mL) Dilution Factor: 10  
Injection Volume: 1(uL) Level: (low/med) Low  
% Moisture: 24.7 GPC Cleanup: (Y/N) N  
Analysis Batch No.: 308192 Units: ug/Kg

CAS NO.	SURROGATE	%REC	Q	LIMITS
367-12-4	2-Fluorophenol (Surr)	91		60-125
4165-62-2	Phenol-d5 (Surr)	78		59-120
4165-60-0	Nitrobenzene-d5 (Surr)	99		62-120
321-60-8	2-Fluorobiphenyl	91		57-120
118-79-6	2,4,6-Tribromophenol (Surr)	68		52-125
1718-51-0	Terphenyl-d14 (Surr)	102		58-120

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FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-88245-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070174 RA Lab Sample ID: 580-88245-4 RA  
 Matrix: Solid Lab File ID: 40scan082319A006.D  
 Analysis Method: 8270D Date Collected: 08/07/2019 10:55  
 Extract. Method: 3550B Date Extracted: 08/12/2019 09:07  
 Sample wt/vol: 11.310(g) Date Analyzed: 08/23/2019 13:18  
 Con. Extract Vol.: 10(mL) Dilution Factor: 10  
 Injection Volume: 1(uL) Level: (low/med) Low  
 % Moisture: 24.7 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 309058 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
193-39-5	Indeno[1,2,3-cd]pyrene	740		470	59

CAS NO.	SURROGATE	%REC	Q	LIMITS
367-12-4	2-Fluorophenol (Surr)	87		60-125
4165-62-2	Phenol-d5 (Surr)	79		59-120
4165-60-0	Nitrobenzene-d5 (Surr)	90		62-120
321-60-8	2-Fluorobiphenyl	92		57-120
118-79-6	2,4,6-Tribromophenol (Surr)	65		52-125
1718-51-0	Terphenyl-d14 (Surr)	113		58-120

FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-88245-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070175

Lab Sample ID: 580-88245-5

Matrix: Solid

Lab File ID: 40scan081319A017.D

Analysis Method: 8270D

Date Collected: 08/07/2019 11:00

Extract. Method: 3550B

Date Extracted: 08/12/2019 09:07

Sample wt/vol: 10.349(g)

Date Analyzed: 08/13/2019 16:04

Con. Extract Vol.: 10(mL)

Dilution Factor: 5

Injection Volume: 1(uL)

Level: (low/med) Low

% Moisture: 12.5

GPC Cleanup: (Y/N) N

Analysis Batch No.: 308192

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
108-95-2	Phenol	ND		830	130
111-44-4	Bis(2-chloroethyl)ether	ND		550	43
95-57-8	2-Chlorophenol	ND		1100	72
541-73-1	1,3-Dichlorobenzene	ND		280	27
106-46-7	1,4-Dichlorobenzene	ND		280	46
100-51-6	Benzyl alcohol	ND		2800	430
95-50-1	1,2-Dichlorobenzene	ND		280	66
95-48-7	2-Methylphenol	ND		830	54
15831-10-4	3 & 4 Methylphenol	ND		1100	83
621-64-7	N-Nitrosodi-n-propylamine	ND		1100	120
67-72-1	Hexachloroethane	ND		830	49
98-95-3	Nitrobenzene	ND		1100	110
78-59-1	Isophorone	ND		830	41
88-75-5	2-Nitrophenol	ND		1100	120
105-67-9	2,4-Dimethylphenol	ND		550	83
65-85-0	Benzoic acid	ND		11000	3200
111-91-1	Bis(2-chloroethoxy)methane	ND		1100	99
120-83-2	2,4-Dichlorophenol	ND		550	83
120-82-1	1,2,4-Trichlorobenzene	ND		280	33
91-20-3	Naphthalene	ND		140	28
106-47-8	4-Chloroaniline	ND		8300	2200
87-68-3	Hexachlorobutadiene	ND		280	83
59-50-7	4-Chloro-3-methylphenol	ND		830	180
91-57-6	2-Methylnaphthalene	ND		280	49
77-47-4	Hexachlorocyclopentadiene	ND		550	110
88-06-2	2,4,6-Trichlorophenol	ND		830	200
95-95-4	2,4,5-Trichlorophenol	ND		1100	250
91-58-7	2-Chloronaphthalene	ND		140	28
88-74-4	2-Nitroaniline	ND		550	83
131-11-3	Dimethyl phthalate	ND		830	72
208-96-8	Acenaphthylene	ND		140	28
606-20-2	2,6-Dinitrotoluene	ND		830	190
99-09-2	3-Nitroaniline	ND		1100	220
83-32-9	Acenaphthene	ND		140	28

FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-88245-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070175

Lab Sample ID: 580-88245-5

Matrix: Solid

Lab File ID: 40scan081319A017.D

Analysis Method: 8270D

Date Collected: 08/07/2019 11:00

Extract. Method: 3550B

Date Extracted: 08/12/2019 09:07

Sample wt/vol: 10.349(g)

Date Analyzed: 08/13/2019 16:04

Con. Extract Vol.: 10(mL)

Dilution Factor: 5

Injection Volume: 1(uL)

Level: (low/med) Low

% Moisture: 12.5

GPC Cleanup: (Y/N) N

Analysis Batch No.: 308192

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
51-28-5	2,4-Dinitrophenol	ND		5500	1100
100-02-7	4-Nitrophenol	ND		8300	2000
132-64-9	Dibenzofuran	ND		830	33
121-14-2	2,4-Dinitrotoluene	ND		1100	240
84-66-2	Diethyl phthalate	ND		8300	420
7005-72-3	4-Chlorophenyl phenyl ether	ND		1100	35
86-73-7	Fluorene	ND		140	28
100-01-6	4-Nitroaniline	ND		830	280
534-52-1	4,6-Dinitro-2-methylphenol	ND		5500	550
86-30-6	N-Nitrosodiphenylamine	ND		330	44
101-55-3	4-Bromophenyl phenyl ether	ND		1100	50
118-74-1	Hexachlorobenzene	ND		280	83
87-86-5	Pentachlorophenol	ND		2500	730
85-01-8	Phenanthrene	ND		330	66
120-12-7	Anthracene	29	J Q	140	28
84-74-2	Di-n-butyl phthalate	ND		2800	310
206-44-0	Fluoranthene	230		140	28
129-00-0	Pyrene	220	J Q	330	35
85-68-7	Butyl benzyl phthalate	ND		1100	280
91-94-1	3,3'-Dichlorobenzidine	ND		2200	550
56-55-3	Benzo[a]anthracene	82	J Q	140	28
218-01-9	Chrysene	ND		330	72
117-81-7	Bis(2-ethylhexyl) phthalate	ND		3300	390
117-84-0	Di-n-octyl phthalate	ND		830	310
50-32-8	Benzo[a]pyrene	130	J Q	330	72
193-39-5	Indeno[1,2,3-cd]pyrene	88	J Q	220	28
53-70-3	Dibenz(a,h)anthracene	ND		280	66
191-24-2	Benzo[g,h,i]perylene	190	J Q	330	50
86-74-8	Carbazole	ND		830	45
90-12-0	1-Methylnaphthalene	ND		170	28
205-99-2	Benzo[b]fluoranthene	190		140	28
207-08-9	Benzo[k]fluoranthene	83	J Q	330	77
108-60-1	bis(chloroisopropyl) ether	ND		1100	77

*Handwritten signature and date: 9/18/19*

FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-88245-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070175 Lab Sample ID: 580-88245-5  
 Matrix: Solid Lab File ID: 40scan081319A017.D  
 Analysis Method: 8270D Date Collected: 08/07/2019 11:00  
 Extract. Method: 3550B Date Extracted: 08/12/2019 09:07  
 Sample wt/vol: 10.349(g) Date Analyzed: 08/13/2019 16:04  
 Con. Extract Vol.: 10(mL) Dilution Factor: 5  
 Injection Volume: 1(uL) Level: (low/med) Low  
 % Moisture: 12.5 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 308192 Units: ug/Kg

CAS NO.	SURROGATE	%REC	Q	LIMITS
367-12-4	2-Fluorophenol (Surr)	75		60-125
4165-62-2	Phenol-d5 (Surr)	70		59-120
4165-60-0	Nitrobenzene-d5 (Surr)	85		62-120
321-60-8	2-Fluorobiphenyl	93		57-120
118-79-6	2,4,6-Tribromophenol (Surr)	74		52-125
1718-51-0	Terphenyl-d14 (Surr)	100		58-120

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FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-88245-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070176

Lab Sample ID: 580-88245-6

Matrix: Solid

Lab File ID: 40scan081319A018.D

Analysis Method: 8270D

Date Collected: 08/07/2019 11:05

Extract. Method: 3550B

Date Extracted: 08/12/2019 09:07

Sample wt/vol: 10.293(g)

Date Analyzed: 08/13/2019 16:28

Con. Extract Vol.: 10(mL)

Dilution Factor: 10

Injection Volume: 1(uL)

Level: (low/med) Low

% Moisture: 10.8

GPC Cleanup: (Y/N) N

Analysis Batch No.: 308192

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
108-95-2	Phenol	ND		1600	250
111-44-4	Bis(2-chloroethyl)ether	ND		1100	84
95-57-8	2-Chlorophenol	ND		2200	140
541-73-1	1,3-Dichlorobenzene	ND		540	52
106-46-7	1,4-Dichlorobenzene	ND		540	90
100-51-6	Benzyl alcohol	ND		5400	840
95-50-1	1,2-Dichlorobenzene	ND		540	130
95-48-7	2-Methylphenol	ND		1600	110
15831-10-4	3 & 4 Methylphenol	ND		2200	160
621-64-7	N-Nitrosodi-n-propylamine	ND		2200	240
67-72-1	Hexachloroethane	ND		1600	96
98-95-3	Nitrobenzene	ND		2200	220
78-59-1	Isophorone	ND		1600	81
88-75-5	2-Nitrophenol	ND		2200	230
105-67-9	2,4-Dimethylphenol	ND		1100	160
65-85-0	Benzoic acid	ND		22000	6300
111-91-1	Bis(2-chloroethoxy)methane	ND		2200	200
120-83-2	2,4-Dichlorophenol	ND		1100	160
120-82-1	1,2,4-Trichlorobenzene	ND		540	65
91-20-3	Naphthalene	ND		270	54
106-47-8	4-Chloroaniline	ND		16000	4400
87-68-3	Hexachlorobutadiene	ND		540	160
59-50-7	4-Chloro-3-methylphenol	ND		1600	360
91-57-6	2-Methylnaphthalene	ND		540	96
77-47-4	Hexachlorocyclopentadiene	ND		1100	220
88-06-2	2,4,6-Trichlorophenol	ND		1600	390
95-95-4	2,4,5-Trichlorophenol	ND		2200	490
91-58-7	2-Chloronaphthalene	ND		270	54
88-74-4	2-Nitroaniline	ND		1100	160
131-11-3	Dimethyl phthalate	ND		1600	140
208-96-8	Acenaphthylene	ND		270	54
606-20-2	2,6-Dinitrotoluene	ND		1600	370
99-09-2	3-Nitroaniline	ND		2200	440
83-32-9	Acenaphthene	ND		270	54

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FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-88245-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070176

Lab Sample ID: 580-88245-6

Matrix: Solid

Lab File ID: 40scan081319A018.D

Analysis Method: 8270D

Date Collected: 08/07/2019 11:05

Extract. Method: 3550B

Date Extracted: 08/12/2019 09:07

Sample wt/vol: 10.293(g)

Date Analyzed: 08/13/2019 16:28

Con. Extract Vol.: 10(mL)

Dilution Factor: 10

Injection Volume: 1(uL)

Level: (low/med) Low

% Moisture: 10.8

GPC Cleanup: (Y/N) N

Analysis Batch No.: 308192

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
51-28-5	2,4-Dinitrophenol	ND		11000	2200
100-02-7	4-Nitrophenol	ND		16000	4000
132-64-9	Dibenzofuran	ND		1600	64
121-14-2	2,4-Dinitrotoluene	ND		2200	470
84-66-2	Diethyl phthalate	ND		16000	830
7005-72-3	4-Chlorophenyl phenyl ether	ND		2200	69
86-73-7	Fluorene	ND		270	54
100-01-6	4-Nitroaniline	ND		1600	540
534-52-1	4,6-Dinitro-2-methylphenol	ND		11000	1100
86-30-6	N-Nitrosodiphenylamine	ND		650	87
101-55-3	4-Bromophenyl phenyl ether	ND		2200	99
118-74-1	Hexachlorobenzene	ND		540	160
87-86-5	Pentachlorophenol	ND		4900	1400
85-01-8	Phenanthrene	ND		650	130
120-12-7	Anthracene	ND		270	54
84-74-2	Di-n-butyl phthalate	ND		5400	620
206-44-0	Fluoranthene	160	JQ	270	54
129-00-0	Pyrene	150	JQ	650	70
85-68-7	Butyl benzyl phthalate	770	JQ	2200	560
91-94-1	3,3'-Dichlorobenzidine	ND		4400	1100
56-55-3	Benzo[a]anthracene	60	JQ	270	54
218-01-9	Chrysene	ND		650	140
117-81-7	Bis(2-ethylhexyl) phthalate	780	JQ	6500	770
117-84-0	Di-n-octyl phthalate	ND		1600	620
50-32-8	Benzo[a]pyrene	160	JQ	650	140
193-39-5	Indeno[1,2,3-cd]pyrene	110	JQ	440	54
53-70-3	Dibenz(a,h)anthracene	ND		540	130
191-24-2	Benzo[g,h,i]perylene	160	JQ	650	98
86-74-8	Carbazole	ND		1600	89
90-12-0	1-Methylnaphthalene	ND		330	54
205-99-2	Benzo[b]fluoranthene	ND		270	54
207-08-9	Benzo[k]fluoranthene	ND		650	150
108-60-1	bis(chloroisopropyl) ether	ND		2200	150

*Handwritten signature and date: 9/18/19*

FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-88245-1  
SDG No.: \_\_\_\_\_  
Client Sample ID: 19070176 Lab Sample ID: 580-88245-6  
Matrix: Solid Lab File ID: 40scan081319A018.D  
Analysis Method: 8270D Date Collected: 08/07/2019 11:05  
Extract. Method: 3550B Date Extracted: 08/12/2019 09:07  
Sample wt/vol: 10.293(g) Date Analyzed: 08/13/2019 16:28  
Con. Extract Vol.: 10(mL) Dilution Factor: 10  
Injection Volume: 1(uL) Level: (low/med) Low  
% Moisture: 10.8 GPC Cleanup: (Y/N) N  
Analysis Batch No.: 308192 Units: ug/Kg

CAS NO.	SURROGATE	%REC	Q	LIMITS
367-12-4	2-Fluorophenol (Surr)	88		60-125
4165-62-2	Phenol-d5 (Surr)	74		59-120
4165-60-0	Nitrobenzene-d5 (Surr)	86		62-120
321-60-8	2-Fluorobiphenyl	105		57-120
118-79-6	2,4,6-Tribromophenol (Surr)	76		52-125
1718-51-0	Terphenyl-d14 (Surr)	112		58-120

*MW 9/18/19*

FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-88245-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070177

Lab Sample ID: 580-88245-7

Matrix: Solid

Lab File ID: 40scan081319A019.D

Analysis Method: 8270D

Date Collected: 08/07/2019 11:10

Extract. Method: 3550B

Date Extracted: 08/12/2019 09:07

Sample wt/vol: 10.584(g)

Date Analyzed: 08/13/2019 16:51

Con. Extract Vol.: 10(mL)

Dilution Factor: 10

Injection Volume: 1(uL)

Level: (low/med) Low

% Moisture: 10.7

GPC Cleanup: (Y/N) N

Analysis Batch No.: 308192

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
108-95-2	Phenol	ND		1600	240
111-44-4	Bis(2-chloroethyl) ether	ND		1100	81
95-57-8	2-Chlorophenol	ND		2100	140
541-73-1	1,3-Dichlorobenzene	ND		530	51
106-46-7	1,4-Dichlorobenzene	ND		530	88
100-51-6	Benzyl alcohol	ND		5300	810
95-50-1	1,2-Dichlorobenzene	ND		530	130
95-48-7	2-Methylphenol	ND		1600	100
15831-10-4	3 & 4 Methylphenol	ND		2100	160
621-64-7	N-Nitrosodi-n-propylamine	ND		2100	230
67-72-1	Hexachloroethane	ND		1600	93
98-95-3	Nitrobenzene	ND		2100	210
78-59-1	Isophorone	ND		1600	78
88-75-5	2-Nitrophenol	ND		2100	220
105-67-9	2,4-Dimethylphenol	ND		1100	160
65-85-0	Benzoic acid	ND		21000	6100
111-91-1	Bis(2-chloroethoxy)methane	ND		2100	190
120-83-2	2,4-Dichlorophenol	ND		1100	160
120-82-1	1,2,4-Trichlorobenzene	ND		530	63
91-20-3	Naphthalene	ND		260	53
106-47-8	4-Chloroaniline	ND		16000	4200
87-68-3	Hexachlorobutadiene	ND		530	160
59-50-7	4-Chloro-3-methylphenol	ND		1600	350
91-57-6	2-Methylnaphthalene	ND		530	93
77-47-4	Hexachlorocyclopentadiene	ND		1100	210
88-06-2	2,4,6-Trichlorophenol	ND		1600	380
95-95-4	2,4,5-Trichlorophenol	ND		2100	480
91-58-7	2-Chloronaphthalene	ND		260	53
88-74-4	2-Nitroaniline	ND		1100	160
131-11-3	Dimethyl phthalate	ND		1600	140
208-96-8	Acenaphthylene	ND		260	53
606-20-2	2,6-Dinitrotoluene	ND		1600	360
99-09-2	3-Nitroaniline	ND		2100	420
83-32-9	Acenaphthene	ND		260	53

*MW 9/18/19*

FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-88245-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070177

Lab Sample ID: 580-88245-7

Matrix: Solid

Lab File ID: 40scan081319A019.D

Analysis Method: 8270D

Date Collected: 08/07/2019 11:10

Extract. Method: 3550B

Date Extracted: 08/12/2019 09:07

Sample wt/vol: 10.584(g)

Date Analyzed: 08/13/2019 16:51

Con. Extract Vol.: 10(mL)

Dilution Factor: 10

Injection Volume: 1(uL)

Level: (low/med) Low

% Moisture: 10.7

GPC Cleanup: (Y/N) N

Analysis Batch No.: 308192

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
51-28-5	2,4-Dinitrophenol	ND		11000	2100
100-02-7	4-Nitrophenol	ND		16000	3900
132-64-9	Dibenzofuran	ND		1600	62
121-14-2	2,4-Dinitrotoluene	ND		2100	450
84-66-2	Diethyl phthalate	ND		16000	800
7005-72-3	4-Chlorophenyl phenyl ether	ND		2100	67
86-73-7	Fluorene	ND		260	53
100-01-6	4-Nitroaniline	ND		1600	530
534-52-1	4,6-Dinitro-2-methylphenol	ND		11000	1100
86-30-6	N-Nitrosodiphenylamine	ND		630	85
101-55-3	4-Bromophenyl phenyl ether	ND		2100	96
118-74-1	Hexachlorobenzene	ND		530	160
87-86-5	Pentachlorophenol	ND		4800	1400
85-01-8	Phenanthrene	ND		630	130
120-12-7	Anthracene	ND		260	53
84-74-2	Di-n-butyl phthalate	ND		5300	600
206-44-0	Fluoranthene	130	J	260	53
129-00-0	Pyrene	130	J	630	68
85-68-7	Butyl benzyl phthalate	560	J	2100	540
91-94-1	3,3'-Dichlorobenzidine	ND		4200	1100
56-55-3	Benzo[a]anthracene	ND		260	53
218-01-9	Chrysene	ND		630	140
117-81-7	Bis(2-ethylhexyl) phthalate	ND		6300	750
117-84-0	Di-n-octyl phthalate	ND		1600	600
50-32-8	Benzo[a]pyrene	ND		630	140
193-39-5	Indeno[1,2,3-cd]pyrene	ND		420	53
53-70-3	Dibenz(a,h)anthracene	ND		530	130
191-24-2	Benzo[g,h,i]perylene	ND		630	95
86-74-8	Carbazole	ND		1600	87
90-12-0	1-Methylnaphthalene	ND		320	53
205-99-2	Benzo[b]fluoranthene	ND		260	53
207-08-9	Benzo[k]fluoranthene	ND		630	150
108-60-1	bis(chloroisopropyl) ether	ND		2100	150

FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-88245-1  
SDG No.: \_\_\_\_\_  
Client Sample ID: 19070177 Lab Sample ID: 580-88245-7  
Matrix: Solid Lab File ID: 40scan081319A019.D  
Analysis Method: 8270D Date Collected: 08/07/2019 11:10  
Extract. Method: 3550B Date Extracted: 08/12/2019 09:07  
Sample wt/vol: 10.584(g) Date Analyzed: 08/13/2019 16:51  
Con. Extract Vol.: 10(mL) Dilution Factor: 10  
Injection Volume: 1(uL) Level: (low/med) Low  
% Moisture: 10.7 GPC Cleanup: (Y/N) N  
Analysis Batch No.: 308192 Units: ug/Kg

CAS NO.	SURROGATE	%REC	Q	LIMITS
367-12-4	2-Fluorophenol (Surr)	81		60-125
4165-62-2	Phenol-d5 (Surr)	80		59-120
4165-60-0	Nitrobenzene-d5 (Surr)	95		62-120
321-60-8	2-Fluorobiphenyl	104		57-120
118-79-6	2,4,6-Tribromophenol (Surr)	54		52-125
1718-51-0	Terphenyl-d14 (Surr)	103		58-120

FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-88245-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070178 Lab Sample ID: 580-88245-8  
 Matrix: Solid Lab File ID: 40scan081319A020.D  
 Analysis Method: 8270D Date Collected: 08/07/2019 14:29  
 Extract. Method: 3550B Date Extracted: 08/12/2019 09:07  
 Sample wt/vol: 10.015(g) Date Analyzed: 08/13/2019 17:15  
 Con. Extract Vol.: 10(mL) Dilution Factor: 1  
 Injection Volume: 1(uL) Level: (low/med) Low  
 % Moisture: 8.9 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 308192 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
108-95-2	Phenol	ND		160	25
111-44-4	Bis(2-chloroethyl) ether	ND		110	8.4
95-57-8	2-Chlorophenol	ND		220	14
541-73-1	1,3-Dichlorobenzene	ND		55	5.3
106-46-7	1,4-Dichlorobenzene	ND		55	9.1
100-51-6	Benzyl alcohol	ND		550	84
95-50-1	1,2-Dichlorobenzene	ND		55	13
95-48-7	2-Methylphenol	ND		160	11
15831-10-4	3 & 4 Methylphenol	ND		220	16
621-64-7	N-Nitrosodi-n-propylamine	ND		220	24
67-72-1	Hexachloroethane	ND		160	9.6
98-95-3	Nitrobenzene	ND		220	22
78-59-1	Isophorone	ND		160	8.1
88-75-5	2-Nitrophenol	ND		220	23
105-67-9	2,4-Dimethylphenol	ND		110	16
65-85-0	Benzoic acid	ND		2200	630
111-91-1	Bis(2-chloroethoxy)methane	ND		220	20
120-83-2	2,4-Dichlorophenol	ND		110	16
120-82-1	1,2,4-Trichlorobenzene	ND		55	6.6
91-20-3	Naphthalene	ND		27	5.5
106-47-8	4-Chloroaniline	ND		1600	440
87-68-3	Hexachlorobutadiene	ND		55	16
59-50-7	4-Chloro-3-methylphenol	ND		160	36
91-57-6	2-Methylnaphthalene	ND		55	9.6
77-47-4	Hexachlorocyclopentadiene	ND		110	22
88-06-2	2,4,6-Trichlorophenol	ND		160	39
95-95-4	2,4,5-Trichlorophenol	ND		220	49
91-58-7	2-Chloronaphthalene	ND		27	5.5
88-74-4	2-Nitroaniline	ND		110	16
131-11-3	Dimethyl phthalate	ND		160	14
208-96-8	Acenaphthylene	ND		27	5.5
606-20-2	2,6-Dinitrotoluene	ND		160	37
99-09-2	3-Nitroaniline	ND		220	44
83-32-9	Acenaphthene	ND		27	5.5

*MW 9/8/19*

FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-88245-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070178

Lab Sample ID: 580-88245-8

Matrix: Solid

Lab File ID: 40scan081319A020.D

Analysis Method: 8270D

Date Collected: 08/07/2019 14:29

Extract. Method: 3550B

Date Extracted: 08/12/2019 09:07

Sample wt/vol: 10.015(g)

Date Analyzed: 08/13/2019 17:15

Con. Extract Vol.: 10(mL)

Dilution Factor: 1

Injection Volume: 1(uL)

Level: (low/med) Low

% Moisture: 8.9

GPC Cleanup: (Y/N) N

Analysis Batch No.: 308192

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
51-28-5	2,4-Dinitrophenol	ND		1100	220
100-02-7	4-Nitrophenol	ND		1600	400
132-64-9	Dibenzofuran	ND		160	6.5
121-14-2	2,4-Dinitrotoluene	ND		220	47
84-66-2	Diethyl phthalate	ND		1600	83
7005-72-3	4-Chlorophenyl phenyl ether	ND		220	6.9
86-73-7	Fluorene	ND		27	5.5
100-01-6	4-Nitroaniline	ND		160	55
534-52-1	4,6-Dinitro-2-methylphenol	ND		1100	110
86-30-6	N-Nitrosodiphenylamine	ND		66	8.8
101-55-3	4-Bromophenyl phenyl ether	ND		220	10
118-74-1	Hexachlorobenzene	ND		55	16
87-86-5	Pentachlorophenol	ND		490	140
85-01-8	Phenanthrene	ND		66	13
120-12-7	Anthracene	ND		27	5.5
84-74-2	Di-n-butyl phthalate	ND		550	62
206-44-0	Fluoranthene	15	J Q	27	5.5
129-00-0	Pyrene	17	J J	66	7.0
85-68-7	Butyl benzyl phthalate	72	J J	220	56
91-94-1	3,3'-Dichlorobenzidine	ND		440	110
56-55-3	Benzo[a]anthracene	ND		27	5.5
218-01-9	Chrysene	ND		66	14
117-81-7	Bis(2-ethylhexyl) phthalate	ND		660	78
117-84-0	Di-n-octyl phthalate	ND		160	62
50-32-8	Benzo[a]pyrene	ND		66	14
193-39-5	Indeno[1,2,3-cd]pyrene	ND		44	5.5
53-70-3	Dibenz(a,h)anthracene	ND		55	13
191-24-2	Benzo[g,h,i]perylene	ND		66	9.9
86-74-8	Carbazole	ND	False	160	9.0
90-12-0	1-Methylnaphthalene	ND		33	5.5
205-99-2	Benzo[b]fluoranthene	ND		27	5.5
207-08-9	Benzo[k]fluoranthene	ND		66	15
108-60-1	bis(chloroisopropyl) ether	ND		220	15



FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-88245-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070178 Lab Sample ID: 580-88245-8  
 Matrix: Solid Lab File ID: 40scan081319A020.D  
 Analysis Method: 8270D Date Collected: 08/07/2019 14:29  
 Extract. Method: 3550B Date Extracted: 08/12/2019 09:07  
 Sample wt/vol: 10.015(g) Date Analyzed: 08/13/2019 17:15  
 Con. Extract Vol.: 10(mL) Dilution Factor: 1  
 Injection Volume: 1(uL) Level: (low/med) Low  
 % Moisture: 8.9 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 308192 Units: ug/Kg

CAS NO.	SURROGATE	%REC	Q	LIMITS
367-12-4	2-Fluorophenol (Surr)	90		60-125
4165-62-2	Phenol-d5 (Surr)	87		59-120
4165-60-0	Nitrobenzene-d5 (Surr)	95		62-120
321-60-8	2-Fluorobiphenyl	86		57-120
118-79-6	2,4,6-Tribromophenol (Surr)	80		52-125
1718-51-0	Terphenyl-d14 (Surr)	105		58-120

*Mw 9-18-19*

FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-88245-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070179

Lab Sample ID: 580-88245-9

Matrix: Solid

Lab File ID: 40scan081319A021.D

Analysis Method: 8270D

Date Collected: 08/07/2019 14:42

Extract. Method: 3550B

Date Extracted: 08/12/2019 09:07

Sample wt/vol: 10.375(g)

Date Analyzed: 08/13/2019 17:38

Con. Extract Vol.: 10(mL)

Dilution Factor: 1

Injection Volume: 1(uL)

Level: (low/med) Low

% Moisture: 8.2

GPC Cleanup: (Y/N) N

Analysis Batch No.: 308192

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
108-95-2	Phenol	ND		160	24
111-44-4	Bis(2-chloroethyl)ether	ND		100	8.1
95-57-8	2-Chlorophenol	ND		210	14
541-73-1	1,3-Dichlorobenzene	ND		52	5.0
106-46-7	1,4-Dichlorobenzene	ND		52	8.7
100-51-6	Benzyl alcohol	ND		520	81
95-50-1	1,2-Dichlorobenzene	ND		52	13
95-48-7	2-Methylphenol	ND		160	10
15831-10-4	3 & 4 Methylphenol	ND		210	16
621-64-7	N-Nitrosodi-n-propylamine	ND		210	23
67-72-1	Hexachloroethane	ND		160	9.2
98-95-3	Nitrobenzene	ND		210	21
78-59-1	Isophorone	ND		160	7.8
88-75-5	2-Nitrophenol	ND		210	22
105-67-9	2,4-Dimethylphenol	ND		100	16
65-85-0	Benzoic acid	ND		2100	610
111-91-1	Bis(2-chloroethoxy)methane	ND		210	19
120-83-2	2,4-Dichlorophenol	ND		100	16
120-82-1	1,2,4-Trichlorobenzene	ND		52	6.3
91-20-3	Naphthalene	ND		26	5.2
106-47-8	4-Chloroaniline	ND		1600	420
87-68-3	Hexachlorobutadiene	ND		52	16
59-50-7	4-Chloro-3-methylphenol	ND		160	35
91-57-6	2-Methylnaphthalene	ND		52	9.2
77-47-4	Hexachlorocyclopentadiene	ND		100	21
88-06-2	2,4,6-Trichlorophenol	ND		160	38
95-95-4	2,4,5-Trichlorophenol	ND		210	47
91-58-7	2-Chloronaphthalene	ND		26	5.2
88-74-4	2-Nitroaniline	ND		100	16
131-11-3	Dimethyl phthalate	ND		160	14
208-96-8	Acenaphthylene	ND		26	5.2
606-20-2	2,6-Dinitrotoluene	ND		160	36
99-09-2	3-Nitroaniline	ND		210	42
83-32-9	Acenaphthene	ND		26	5.2

FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>Eurofins TestAmerica, Seattle</u>	Job No.: <u>580-88245-1</u>
SDG No.: _____	
Client Sample ID: <u>19070179</u>	Lab Sample ID: <u>580-88245-9</u>
Matrix: <u>Solid</u>	Lab File ID: <u>40scan081319A021.D</u>
Analysis Method: <u>8270D</u>	Date Collected: <u>08/07/2019 14:42</u>
Extract. Method: <u>3550B</u>	Date Extracted: <u>08/12/2019 09:07</u>
Sample wt/vol: <u>10.375(g)</u>	Date Analyzed: <u>08/13/2019 17:38</u>
Con. Extract Vol.: <u>10(mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>1(uL)</u>	Level: (low/med) <u>Low</u>
% Moisture: <u>8.2</u>	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>308192</u>	Units: <u>ug/Kg</u>

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
51-28-5	2,4-Dinitrophenol	ND		1000	210
100-02-7	4-Nitrophenol	ND		1600	390
132-64-9	Dibenzofuran	ND		160	6.2
121-14-2	2,4-Dinitrotoluene	ND		210	45
84-66-2	Diethyl phthalate	ND		1600	80
7005-72-3	4-Chlorophenyl phenyl ether	ND		210	6.6
86-73-7	Fluorene	ND		26	5.2
100-01-6	4-Nitroaniline	ND		160	52
534-52-1	4,6-Dinitro-2-methylphenol	ND		1000	100
86-30-6	N-Nitrosodiphenylamine	ND		63	8.4
101-55-3	4-Bromophenyl phenyl ether	ND		210	9.6
118-74-1	Hexachlorobenzene	ND		52	16
87-86-5	Pentachlorophenol	ND		470	140
85-01-8	Phenanthrene	ND		63	13
120-12-7	Anthracene	ND		26	5.2
84-74-2	Di-n-butyl phthalate	ND		520	60
206-44-0	Fluoranthene	10	JQ	26	5.2
129-00-0	Pyrene	13	JG	63	6.7
85-68-7	Butyl benzyl phthalate	ND		210	54
91-94-1	3,3'-Dichlorobenzidine	ND		420	100
56-55-3	Benzo[a]anthracene	ND		26	5.2
218-01-9	Chrysene	ND		63	14
117-81-7	Bis(2-ethylhexyl) phthalate	82	JQ	630	75
117-84-0	Di-n-octyl phthalate	ND		160	60
50-32-8	Benzo[a]pyrene	ND		63	14
193-39-5	Indeno[1,2,3-cd]pyrene	ND		42	5.2
53-70-3	Dibenz(a,h)anthracene	ND		52	13
191-24-2	Benzo[g,h,i]perylene	ND		63	9.4
86-74-8	Carbazole	ND	<del>mu</del>	160	8.6
90-12-0	1-Methylnaphthalene	ND		31	5.2
205-99-2	Benzo[b]fluoranthene	ND		26	5.2
207-08-9	Benzo[k]fluoranthene	ND		63	15
108-60-1	bis(chloroisopropyl) ether	ND		210	15

FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-88245-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070179 Lab Sample ID: 580-88245-9  
 Matrix: Solid Lab File ID: 40scan081319A021.D  
 Analysis Method: 8270D Date Collected: 08/07/2019 14:42  
 Extract. Method: 3550B Date Extracted: 08/12/2019 09:07  
 Sample wt/vol: 10.375(g) Date Analyzed: 08/13/2019 17:38  
 Con. Extract Vol.: 10(mL) Dilution Factor: 1  
 Injection Volume: 1(uL) Level: (low/med) Low  
 % Moisture: 8.2 GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 308192 Units: ug/Kg

CAS NO.	SURROGATE	%REC	Q	LIMITS
367-12-4	2-Fluorophenol (Surr)	84		60-125
4165-62-2	Phenol-d5 (Surr)	81		59-120
4165-60-0	Nitrobenzene-d5 (Surr)	88		62-120
321-60-8	2-Fluorobiphenyl	95		57-120
118-79-6	2,4,6-Tribromophenol (Surr)	74		52-125
1718-51-0	Terphenyl-d14 (Surr)	101		58-120

*mw 9/8/19*



**MEMORANDUM**

DATE: August 27, 2019

TO: Seth Wing, START-IV Project Manager, E & E, Seattle, WA

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington *MW*

SUBJ: **Organic Data Quality Assurance Review, May Creek Removal Action Site, Renton, Washington**

REF: TO: TO-68HE0718F0470 PAN: 1004530.0470.001.01

The data quality assurance review of 3 soil samples collected from the May Creek Removal Action site in Renton, Washington, has been completed. Volatile Organic Compound (VOC) analysis (EPA Method 8260) was performed by Test America, Inc., Tacoma, Washington. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Manual Process (S2B/4VM).

The samples were numbered: 19070178 19070179 19070613

**Data Qualifications:**

**1. Sample Holding Times: Acceptable.**

The samples were maintained within the QC limits of  $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ . The samples were collected on August 7, 2019, were received at the laboratory on August 8, 2019, and were analyzed by August 13, 2019, therefore meeting QC criteria of less than 14 days between collection and analysis for soil samples.

**2. Tuning: Acceptable.**

Tuning was performed at the beginning of each 12-hour analysis sequence. All results were within QC limits.

**3. Initial Calibration: Acceptable.**

All average Relative Response Factors (RRFs) were within the QC limits. All Relative Standard Deviations (RSDs) and/or correlation coefficients were within the QC limits.

**4. Continuing Calibration: Satisfactory.**

All RRFs were within the QC limits. Applicable percent differences were within QC limits except dichlorodifluoromethane with a low recovery; sample quantitation limits associated with low recoveries were qualified as estimated quantities with a low bias (JL or UJL).

**5. Blanks: Acceptable.**

A method blank was analyzed for each 20 sample batch per matrix. There were no detections in any method blank. There were no detections in the trip blank.

**6. System Monitoring Compounds (SMCs): Acceptable.**

All SMC recoveries were within QC limits.

**7. Blank Spike (BS)/BS Duplicate (BSD) Analysis: Acceptable.**

BS and BSD analyses were performed per SDG or per matrix per concentration level, whichever was more frequent. All recoveries were within QC limits.

**8. Spike Duplicate Analysis: Acceptable.**

Spike duplicate analyses were performed per SDG or per matrix per concentration level, whichever was more frequent. All spike duplicate results were within QC limits.

**9. Internal Standards: Acceptable.**

All internal standards were within  $\pm 30$  seconds of the continuing calibration internal standard retention times. All area counts were within 50 % to 200 % of the continuing calibration area counts.

**10. Overall Assessment of Data for Use**

The sample weights for samples 19070178 and 19070179 were greater than that required by the method; associated sample results were qualified as estimated quantities with an unknown bias (JK).

The sample results are provided as wet weight results.

A total of 180 results were validated in this data memorandum. No sample results were qualified as estimated quantities (J) based on duplicate precision outliers, spike accuracy outliers, holding time outliers, incorrect sample containers, or sample temperature outliers. No sample results were rejected (R).

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the analytical method(s), the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, and/or the Office of Emergency and Remedial Response Publication "National Functional Guidelines for Superfund Organic Methods Data Review, January 2017". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

H - The sample result is biased high.

J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

K - The bias of the sample is not known.

L - The sample result is biased low.

N - The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification".

NJ - The analyte has been "tentatively identified" or "presumptively" as present and the associated numerical value is the estimated concentration in the sample.

- Q - Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.
- R - The data is rejected and unusable. The analyte may or may not be present in the sample.
- U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-88258-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070178

Lab Sample ID: 580-88258-1

Matrix: Solid

Lab File ID: 081319\_0022.D

Analysis Method: 8260C

Date Collected: 08/07/2019 14:29

Sample wt/vol: 7.437(g)

Date Analyzed: 08/13/2019 18:34

Soil Aliquot Vol: \_\_\_\_\_

Dilution Factor: 1

Soil Extract Vol.: \_\_\_\_\_

GC Column: DB-VRX ID: 0.25 (mm)

% Moisture: \_\_\_\_\_

Level: (low/med) Low

Analysis Batch No.: 308208

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-71-8	Dichlorodifluoromethane	ND		1.3	0.33
74-87-3	Chloromethane	ND		3.4	0.63
75-01-4	Vinyl chloride	ND		1.3	0.20
74-83-9	Bromomethane	ND		0.67	0.14
75-00-3	Chloroethane	ND		6.7	1.1
75-69-4	Trichlorofluoromethane	ND		1.3	0.20
75-35-4	1,1-Dichloroethene	ND		3.4	0.74
75-09-2	Methylene Chloride	ND		27	6.7
156-60-5	trans-1,2-Dichloroethene	ND		1.3	0.27
75-34-3	1,1-Dichloroethane	ND		0.67	0.13
594-20-7	2,2-Dichloropropane	ND		3.4	0.61
156-59-2	cis-1,2-Dichloroethene	ND		2.0	0.40
74-97-5	Bromochloromethane	ND		1.3	0.17
67-66-3	Chloroform	ND		1.3	0.20
71-55-6	1,1,1-Trichloroethane	ND		1.3	0.20
56-23-5	Carbon tetrachloride	ND		1.3	0.20
563-58-6	1,1-Dichloropropene	ND		1.3	0.20
71-43-2	Benzene	ND		1.3	0.26
107-06-2	1,2-Dichloroethane	ND		0.67	0.13
79-01-6	Trichloroethene	ND		1.3	0.20
78-87-5	1,2-Dichloropropane	ND		1.3	0.27
74-95-3	Dibromomethane	ND		0.67	0.11
75-27-4	Bromodichloromethane	ND		0.67	0.12
10061-01-5	cis-1,3-Dichloropropene	ND		0.67	0.13
108-88-3	Toluene	ND		6.7	0.87
10061-02-6	trans-1,3-Dichloropropene	ND		6.7	0.94
79-00-5	1,1,2-Trichloroethane	ND		1.3	0.17
127-18-4	Tetrachloroethene	ND		1.3	0.27
142-28-9	1,3-Dichloropropane	ND		1.3	0.15
124-48-1	Dibromochloromethane	ND		1.0	0.18
106-93-4	1,2-Dibromoethane	ND		0.67	0.13
108-90-7	Chlorobenzene	ND		1.3	0.17
100-41-4	Ethylbenzene	ND		1.3	0.28
630-20-6	1,1,1,2-Tetrachloroethane	ND		2.0	0.40
79-34-5	1,1,2,2-Tetrachloroethane	ND		2.7	0.61
179601-23-1	m-Xylene & p-Xylene	ND		6.7	1.1

FORM I 8260C

*Handwritten signature and date: 8-27-19*



FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-88258-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070178 Lab Sample ID: 580-88258-1  
 Matrix: Solid Lab File ID: 081319\_0022.D  
 Analysis Method: 8260C Date Collected: 08/07/2019 14:29  
 Sample wt/vol: 7.437(g) Date Analyzed: 08/13/2019 18:34  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: DB-VRX ID: 0.25 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 308208 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
95-47-6	o-Xylene	ND		3.4	0.62
100-42-5	Styrene	ND		2.0	0.50
75-25-2	Bromoform	ND		3.4	0.56
98-82-8	Isopropylbenzene	ND		1.3	0.31
108-86-1	Bromobenzene	ND		6.7	0.67
103-65-1	N-Propylbenzene	ND		3.4	0.51
96-18-4	1,2,3-Trichloropropane	ND		3.4	0.67
95-49-8	2-Chlorotoluene	ND		3.4	0.63
108-67-8	1,3,5-Trimethylbenzene	ND		3.4	0.54
106-43-4	4-Chlorotoluene	ND		3.4	0.67
98-06-6	t-Butylbenzene	ND		2.0	0.44
95-63-6	1,2,4-Trimethylbenzene	ND		3.4	0.81
135-98-8	sec-Butylbenzene	ND		2.0	0.45
541-73-1	1,3-Dichlorobenzene	ND		3.4	0.74
99-87-6	4-Isopropyltoluene	ND		1.3	0.27
106-46-7	1,4-Dichlorobenzene	ND		3.4	0.66
104-51-8	n-Butylbenzene	ND		2.0	0.42
95-50-1	1,2-Dichlorobenzene	ND		6.7	0.87
96-12-8	1,2-Dibromo-3-Chloropropane	ND		6.7	1.1
120-82-1	1,2,4-Trichlorobenzene	ND		1.3	0.28
87-61-6	1,2,3-Trichlorobenzene	ND		2.0	0.40
87-68-3	Hexachlorobutadiene	ND		2.0	0.40
91-20-3	Naphthalene	ND		6.7	1.2
1634-04-4	Methyl tert-butyl ether	ND		1.3	0.20

CAS NO.	SURROGATE	%REC	Q	LIMITS
2037-26-5	Toluene-d8 (Surr)	104		80-120
460-00-4	4-Bromofluorobenzene (Surr)	97		80-120
1868-53-7	Dibromofluoromethane (Surr)	102		80-120
98-08-8	Trifluorotoluene (Surr)	84		80-120
17060-07-0	1,2-Dichloroethane-d4 (Surr)	116		80-121

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-88258-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070179

Lab Sample ID: 580-88258-2

Matrix: Solid

Lab File ID: 081319\_0023.D

Analysis Method: 8260C

Date Collected: 08/07/2019 14:42

Sample wt/vol: 6.967(g)

Date Analyzed: 08/13/2019 18:59

Soil Aliquot Vol: \_\_\_\_\_

Dilution Factor: 1

Soil Extract Vol.: \_\_\_\_\_

GC Column: DB-VRX ID: 0.25 (mm)

% Moisture: \_\_\_\_\_

Level: (low/med) Low

Analysis Batch No.: 308208

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-71-8	Dichlorodifluoromethane	ND		1.4	0.35
74-87-3	Chloromethane	ND		3.6	0.67
75-01-4	Vinyl chloride	ND		1.4	0.22
74-83-9	Bromomethane	ND		0.72	0.15
75-00-3	Chloroethane	ND		7.2	1.1
75-69-4	Trichlorofluoromethane	ND		1.4	0.22
75-35-4	1,1-Dichloroethene	ND		3.6	0.79
75-09-2	Methylene Chloride	ND		29	7.1
156-60-5	trans-1,2-Dichloroethene	ND		1.4	0.29
75-34-3	1,1-Dichloroethane	ND		0.72	0.14
594-20-7	2,2-Dichloropropane	ND		3.6	0.65
156-59-2	cis-1,2-Dichloroethene	ND		2.2	0.43
74-97-5	Bromochloromethane	ND		1.4	0.18
67-66-3	Chloroform	ND		1.4	0.22
71-55-6	1,1,1-Trichloroethane	ND		1.4	0.22
56-23-5	Carbon tetrachloride	ND		1.4	0.22
563-58-6	1,1-Dichloropropene	ND		1.4	0.22
71-43-2	Benzene	ND		1.4	0.28
107-06-2	1,2-Dichloroethane	ND		0.72	0.14
79-01-6	Trichloroethene	ND		1.4	0.22
78-87-5	1,2-Dichloropropane	ND		1.4	0.29
74-95-3	Dibromomethane	ND		0.72	0.12
75-27-4	Bromodichloromethane	ND		0.72	0.13
10061-01-5	cis-1,3-Dichloropropene	ND		0.72	0.14
108-88-3	Toluene	ND		7.2	0.93
10061-02-6	trans-1,3-Dichloropropene	ND		7.2	1.0
79-00-5	1,1,2-Trichloroethane	ND		1.4	0.18
127-18-4	Tetrachloroethene	ND		1.4	0.29
142-28-9	1,3-Dichloropropane	ND		1.4	0.17
124-48-1	Dibromochloromethane	ND		1.1	0.19
106-93-4	1,2-Dibromoethane	ND		0.72	0.14
108-90-7	Chlorobenzene	ND		1.4	0.18
100-41-4	Ethylbenzene	ND		1.4	0.29
630-20-6	1,1,1,2-Tetrachloroethane	ND		2.2	0.42
79-34-5	1,1,2,2-Tetrachloroethane	ND		2.9	0.65
179601-23-1	m-Xylene & p-Xylene	ND		7.2	1.2

FORM I 8260C

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-88258-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070179 Lab Sample ID: 580-88258-2  
 Matrix: Solid Lab File ID: 081319\_0023.D  
 Analysis Method: 8260C Date Collected: 08/07/2019 14:42  
 Sample wt/vol: 6.967(g) Date Analyzed: 08/13/2019 18:59  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: DB-VRX ID: 0.25 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 308208 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
95-47-6	o-Xylene	ND		3.6	0.66
100-42-5	Styrene	ND		2.2	0.53
75-25-2	Bromoform	ND		3.6	0.60
98-82-8	Isopropylbenzene	ND		1.4	0.33
108-86-1	Bromobenzene	ND		7.2	0.72
103-65-1	N-Propylbenzene	ND		3.6	0.55
96-18-4	1,2,3-Trichloropropane	ND		3.6	0.72
95-49-8	2-Chlorotoluene	ND		3.6	0.67
108-67-8	1,3,5-Trimethylbenzene	ND		3.6	0.58
106-43-4	4-Chlorotoluene	ND		3.6	0.72
98-06-6	t-Butylbenzene	ND		2.2	0.47
95-63-6	1,2,4-Trimethylbenzene	ND		3.6	0.86
135-98-8	sec-Butylbenzene	ND		2.2	0.48
541-73-1	1,3-Dichlorobenzene	ND		3.6	0.79
99-87-6	4-Isopropyltoluene	ND		1.4	0.29
106-46-7	1,4-Dichlorobenzene	ND		3.6	0.70
104-51-8	n-Butylbenzene	ND		2.2	0.45
95-50-1	1,2-Dichlorobenzene	ND		7.2	0.93
96-12-8	1,2-Dibromo-3-Chloropropane	ND		7.2	1.1
120-82-1	1,2,4-Trichlorobenzene	ND		1.4	0.30
87-61-6	1,2,3-Trichlorobenzene	ND		2.2	0.43
87-68-3	Hexachlorobutadiene	ND		2.2	0.43
91-20-3	Naphthalene	ND		7.2	1.3
1634-04-4	Methyl tert-butyl ether	ND		1.4	0.22

CAS NO.	SURROGATE	%REC	Q	LIMITS
2037-26-5	Toluene-d8 (Surr)	104		80-120
460-00-4	4-Bromofluorobenzene (Surr)	97		80-120
1868-53-7	Dibromofluoromethane (Surr)	103		80-120
98-08-8	Trifluorotoluene (Surr)	84		80-120
17060-07-0	1,2-Dichloroethane-d4 (Surr)	120		80-121

*MW 827-19*

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-88258-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070613 Lab Sample ID: 580-88258-3  
 Matrix: Solid Lab File ID: 081319\_0008.D  
 Analysis Method: 8260C Date Collected: 08/07/2019 17:00  
 Sample wt/vol: 5(g) Date Analyzed: 08/13/2019 12:49  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: DB-VRX ID: 0.25 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 308208 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-71-8	Dichlorodifluoromethane	ND		2.0	0.49
74-87-3	Chloromethane	ND		5.0	0.93
75-01-4	Vinyl chloride	ND		2.0	0.30
74-83-9	Bromomethane	ND		1.0	0.21
75-00-3	Chloroethane	ND		10	1.6
75-69-4	Trichlorofluoromethane	ND		2.0	0.30
75-35-4	1,1-Dichloroethene	ND		5.0	1.1
75-09-2	Methylene Chloride	ND		40	9.9
156-60-5	trans-1,2-Dichloroethene	ND		2.0	0.40
75-34-3	1,1-Dichloroethane	ND		1.0	0.19
594-20-7	2,2-Dichloropropane	ND		5.0	0.90
156-59-2	cis-1,2-Dichloroethene	ND		3.0	0.60
74-97-5	Bromochloromethane	ND		2.0	0.25
67-66-3	Chloroform	ND		2.0	0.30
71-55-6	1,1,1-Trichloroethane	ND		2.0	0.30
56-23-5	Carbon tetrachloride	ND		2.0	0.30
563-58-6	1,1-Dichloropropene	ND		2.0	0.30
71-43-2	Benzene	ND		2.0	0.39
107-06-2	1,2-Dichloroethane	ND		1.0	0.20
79-01-6	Trichloroethene	ND		2.0	0.30
78-87-5	1,2-Dichloropropane	ND		2.0	0.40
74-95-3	Dibromomethane	ND		1.0	0.17
75-27-4	Bromodichloromethane	ND		1.0	0.18
10061-01-5	cis-1,3-Dichloropropene	ND		1.0	0.20
108-88-3	Toluene	ND		10	1.3
10061-02-6	trans-1,3-Dichloropropene	ND		10	1.4
79-00-5	1,1,2-Trichloroethane	ND		2.0	0.25
127-18-4	Tetrachloroethene	ND		2.0	0.40
142-28-9	1,3-Dichloropropane	ND		2.0	0.23
124-48-1	Dibromochloromethane	ND		1.5	0.27
106-93-4	1,2-Dibromoethane	ND		1.0	0.20
108-90-7	Chlorobenzene	ND		2.0	0.25
100-41-4	Ethylbenzene	ND		2.0	0.41
630-20-6	1,1,1,2-Tetrachloroethane	ND		3.0	0.59
79-34-5	1,1,2,2-Tetrachloroethane	ND		4.0	0.90
179601-23-1	m-Xylene & p-Xylene	ND		10	1.7

FORM I 8260C

AN 82719 08/26/2019

FORM I  
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle

Job No.: 580-88258-1

SDG No.: \_\_\_\_\_

Client Sample ID: 19070613

Lab Sample ID: 580-88258-3

Matrix: Solid

Lab File ID: 081319\_0008.D

Analysis Method: 8260C

Date Collected: 08/07/2019 17:00

Sample wt/vol: 5(g)

Date Analyzed: 08/13/2019 12:49

Soil Aliquot Vol: \_\_\_\_\_

Dilution Factor: 1

Soil Extract Vol.: \_\_\_\_\_

GC Column: DB-VRX ID: 0.25 (mm)

% Moisture: \_\_\_\_\_

Level: (low/med) Low

Analysis Batch No.: 308208

Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
95-47-6	o-Xylene	ND		5.0	0.92
100-42-5	Styrene	ND		3.0	0.74
75-25-2	Bromoform	ND		5.0	0.84
98-82-8	Isopropylbenzene	ND		2.0	0.46
108-86-1	Bromobenzene	ND		10	1.0
103-65-1	N-Propylbenzene	ND		5.0	0.76
96-18-4	1,2,3-Trichloropropane	ND		5.0	1.0
95-49-8	2-Chlorotoluene	ND		5.0	0.93
108-67-8	1,3,5-Trimethylbenzene	ND		5.0	0.81
106-43-4	4-Chlorotoluene	ND		5.0	1.0
98-06-6	t-Butylbenzene	ND		3.0	0.66
95-63-6	1,2,4-Trimethylbenzene	ND		5.0	1.2
135-98-8	sec-Butylbenzene	ND		3.0	0.67
541-73-1	1,3-Dichlorobenzene	ND		5.0	1.1
99-87-6	4-Isopropyltoluene	ND		2.0	0.40
106-46-7	1,4-Dichlorobenzene	ND		5.0	0.98
104-51-8	n-Butylbenzene	ND		3.0	0.63
95-50-1	1,2-Dichlorobenzene	ND		10	1.3
96-12-8	1,2-Dibromo-3-Chloropropane	ND		10	1.6
120-82-1	1,2,4-Trichlorobenzene	ND		2.0	0.42
87-61-6	1,2,3-Trichlorobenzene	ND		3.0	0.60
87-68-3	Hexachlorobutadiene	ND		3.0	0.60
91-20-3	Naphthalene	ND		10	1.8
1634-04-4	Methyl tert-butyl ether	ND		2.0	0.30

CAS NO.	SURROGATE	%REC	Q	LIMITS
2037-26-5	Toluene-d8 (Surr)	103		80-120
460-00-4	4-Bromofluorobenzene (Surr)	96		80-120
1868-53-7	Dibromofluoromethane (Surr)	97		80-120
98-08-8	Trifluorotoluene (Surr)	89		80-120
17060-07-0	1,2-Dichloroethane-d4 (Surr)	114		80-121



## ecology and environment, inc.

Global Environmental Specialists

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Tel: (206) 624-9537, Fax: (206) 621-9832

### MEMORANDUM

DATE: August 27, 2019

TO: Seth Wing, START-IV Project Manager, E & E, Seattle, Washington

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington *MW*

SUBJ: **Organic Data Quality Assurance Review, Gorst Creek Removal Action Site, Port Orchard, Washington**

REF: TO: TO-0520-001 PAN: 1004530.0019.001.02

The data quality assurance review of 3 soil samples collected from the Gorst Creek Removal Action site located in Port Orchard, Washington, has been completed. Analysis for Extended Gasoline Range Total Petroleum Hydrocarbons (Ecology Method NWTPH-Gx) analyses was performed by Test America, Inc., Tacoma, Washington. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Manual Process (S2B/4VM).

The samples were numbered: 19070178 19070179 19070613

#### Data Qualifications:

##### 1. Sample Holding Times: Acceptable.

The samples were maintained and received within the QC limits of  $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ . The samples were collected on August 7, 2019, were received at the laboratory on August 8, 2019, and were analyzed by August 14, 2019, therefore meeting QC criteria of less than 14 days between collection and analysis for soil samples.

##### 2. Initial Calibration: Acceptable.

Calculations were verified as correct. All relative percent differences (RPDs) were less than or equal to the laboratory control limits.

##### 3. Continuing Calibration: Acceptable.

Calculations were verified as correct. All percent differences were less than or equal to the laboratory control limits.

##### 4. Blanks: Acceptable.

A method blank was analyzed at the required frequency of every 12 hours for each matrix, preparation technique, and analysis system. Gasoline-range TPHs were not detected in the method blank or in the trip blank.

**5. System Monitoring Compounds (SMC): Acceptable.**

All recoveries of the SMCs were greater than 10% and within QC limits.

**6. Blank Spikes (BS) and BS Duplicate (BSD) Analyses: Acceptable.**

BS and BSD results were within laboratory QC limits.

**7. Duplicates: Satisfactory.**

All spike duplicate results were within laboratory QC limits except the gasoline BS/BSD; no actions were taken based on the spike duplicate outlier alone.

**8. Quantitation and Quantitation Limits: Acceptable.**

Sample quantitation and sample quantitation limits were correctly calculated.

**9. Laboratory Contact: Not Required.**

No laboratory contact was required.

**10. Overall Assessment of Data for Use**

The sample weights for samples 19070178 and 19070179 were greater than that required by the method; associated sample results were qualified as estimated quantities with an unknown bias (JK).

The sample results are provided as wet weight results.

A total of three results were validated in this data memorandum. No sample results were qualified as estimated quantities (J) based on duplicate precision outliers, spike accuracy outliers, holding time outliers, incorrect sample containers, or sample temperature outliers. No sample results were rejected (R).

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the analytical method(s), the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, and/or the Office of Emergency and Remedial Response Publication "National Functional Guidelines for Superfund Organic Methods Data Review, January 2017". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

H - The sample result is biased high.

J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

K - The bias of the sample is not known.

- L - The sample result is biased low.
- Q - Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.
- R - The data is rejected and unusable. The analyte may or may not be present in the sample.
- U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.



FORM I  
GC VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-88258-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070178 Lab Sample ID: 580-88258-1  
 Matrix: Solid Lab File ID: 08131940.D  
 Analysis Method: NWTPH-Gx Date Collected: 08/07/2019 14:29  
 Sample wt/vol: 13.771(g) Date Analyzed: 08/14/2019 02:16  
 Soil Aliquot Vol: 1.075 (mL) Dilution Factor: 1  
 Soil Extract Vol.: 10 (mL) GC Column: RTX-VRX ID: 0.45 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Medium  
 Analysis Batch No.: 308304 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00228	Gasoline	1.8	J <i>1.8</i>	3.6	1.7

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	96		50-150

*MM 8-27-19*

FORM I  
GC VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-88258-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070179 Lab Sample ID: 580-88258-2  
 Matrix: Solid Lab File ID: 08131941.D  
 Analysis Method: NWTPH-Gx Date Collected: 08/07/2019 14:42  
 Sample wt/vol: 12.757(g) Date Analyzed: 08/14/2019 02:40  
 Soil Aliquot Vol: 1.075 (mL) Dilution Factor: 1  
 Soil Extract Vol.: 10 (mL) GC Column: RTX-VRX ID: 0.45 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Medium  
 Analysis Batch No.: 308304 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00228	Gasoline	2.7	J <i>WQ</i>	3.9	1.8

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	86		50-150

*mw 827-19*

FORM I  
GC VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-88258-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 19070613 Lab Sample ID: 580-88258-3  
 Matrix: Solid Lab File ID: 08131939.D  
 Analysis Method: NWTPH-Gx Date Collected: 08/07/2019 17:00  
 Sample wt/vol: 10(g) Date Analyzed: 08/14/2019 01:51  
 Soil Aliquot Vol: 1.075 (mL) Dilution Factor: 1  
 Soil Extract Vol.: 10 (mL) GC Column: RTX-VRX ID: 0.45 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Medium  
 Analysis Batch No.: 308304 Units: mg/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
STL00228	Gasoline	ND	1	5.0	2.3

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	86		50-150

*MW 827-19*



## ecology and environment, inc.

Global Environmental Specialists

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### MEMORANDUM

DATE: December 6, 2018

TO: Steve Hall, START-IV Project Manager, E & E, Seattle, WA

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, WA *MW*

SUBJ: **Data Quality Assurance Review, May Creek Removal Site,  
Renton, Washington**

REF: TO: TO-68HE0718F0470 PAN: 1004530.0470.001.01

The data quality assurance review of 4 solid samples collected from the May Creek Removal site in Renton, Washington, has been completed. Polarized light microscopy (PLM) (EPA Method 600/R-93/116) analyses were performed by A & B Labs, Inc., Houston, Texas. All sample analyses were evaluated following EPA's Stage 2A Data Validation Manual Process (S2AVM).

The samples were numbered:

18111031      18111032      18111033      18111034

#### Data Qualifications:

The samples were collected on November 19 and 20, 2018, and were analyzed by December 5, 2018. No discrepancies were noted in the laboratory case narrative.

A total of 7 results were validated in this data memorandum. No sample results were qualified as estimated quantities (J). No sample results were rejected (R).

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, and the analytical method(s). Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

#### Data Qualifiers and Definitions

U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.



## TEST REPORT FOR BULK ASBESTOS BY PLM

A&amp;B Job ID 18120101

Date : 12/05/2018

Client Name: Ecology and Environment, Inc.

Project 10RB

Name:

Date Received: 12/04/2018

Date Analyzed: 12/05/2018

Analyst Initial: HA

<i>A&amp;B Sample ID</i> <i>Client Sample ID</i>	<i>Sample</i> <i>Description</i>	<i>Asbestos</i> <i>Detected</i>	<i>Asbestos</i> <i>Fibers</i>	<i>Other</i> <i>Fibers</i>	<i>Non - Fibrous</i> <i>Material</i>
<b>18120101.01</b> 18120101.01.A 18111031 Layer % of Total :100%	Floor Tile Granular/Vinyl Homogeneous Black	No		Cellulose 1-10%	Binder Carbonate Glue Vinyl
<b>18120101.02</b> 18120101.02.A 18111032 Layer % of Total :100%	Floor Tile & Glue Granular/Vinyl Homogeneous Red	No		Cellulose 1-10%	Binder Carbonate Glue Vinyl
<b>18120101.02</b> 18120101.02.B 18111032 Layer % of Total :100%	Floor Tile & Glue Granular/Vinyl Homogeneous Brown/Yellow	No		Cellulose 1-10%	Binder Carbonate Glue Vinyl
<b>18120101.03</b> 18120101.03.A 18111033 Layer % of Total :10%	Mastic Fibrous/Granular/Tar Homogeneous Black	No		Cellulose 1-10%	Binder Minrl Frags Tar
<b>18120101.03</b> 18120101.03.B 18111033 Layer % of Total :90%	Floor Tile Granular/Vinyl Homogeneous Gray/Tan	No		Cellulose 1-10%	Binder Carbonate Minrl Frags Vinyl
<b>18120101.04</b> 18120101.04.A 18111034 Layer % of Total :100%	Floor Tile & Glue Granular/Vinyl Homogeneous Red	No		Cellulose 1-10%	Binder Carbonate Glue Vinyl
<b>18120101.04</b> 18120101.04.B 18111034 Layer % of Total :100%	Floor Tile & Glue Granular/Vinyl Homogeneous Gray/Tan	No		Cellulose 1-10%	Binder Carbonate Glue Vinyl

NW 12-6-18



## ecology and environment, inc.

Global Environmental Specialists

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### MEMORANDUM

DATE: August 26, 2019

TO: Seth Wing, START-IV Project Manager, E & E, Seattle, WA

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington *MW*

SUBJ: **Dioxin/Furan Data Quality Assurance Review, May Creek Removal Action Site, Renton, Washington**

REF: TO: TO-68HE0718F0470      PAN: 1004530.0470.001.01

The data quality assurance review of one soil sample collected from the May Creek Removal Action site in Renton, Washington, has been completed. Polychlorinated Dibenzo-p-Dioxin (PCDD)/Polychlorinated Dibenzo Furan (PCDF) analyses (EPA SW-846 Method 8290) were performed by Cape Fear Analytical, Inc., Wilmington, North Carolina. All sample analyses were evaluated following EPA's Stage 4 Data Validation Manual Process (S4VM).

The sample was numbered: 19070001

#### **Data Qualifications:**

**1. Holding Times, Storage, and Preservation: Acceptable.**

The sample was maintained on ice in the dark from collection until extraction. The sample temperature upon receipt was 4.9 °C, within the QC limits of < 6°C. The sample was collected on July 10, 2019, was extracted on July 29, 2019, and was analyzed on August 1, 2019. There are no holding time limits for Method 8290 soil samples.

**2. Mass Calibration and Mass Spectrometer Resolution: Acceptable.**

Mass spectrometer (MS) resolution of  $\geq 10,000$  was demonstrated at the beginning and end of each 12-hour analytical sequence.

**3. Window Defining Mix: Acceptable.**

The window defining mix (WDM) was analyzed after the initial MS resolution analysis and prior to calibration standards. Positive sample results were within the retention time limits established by the WDM for the corresponding homologue.

**4. Chromatographic Resolution: Acceptable.**

The chromatographic peak separation on a DB-5 (or equivalent) column between the 2,3,7,8-TCDD peak and the 1,2,3,8-TCDD peak was resolved with a valley of  $\leq 25\%$ .

**5. Instrument Stability: Acceptable.**

The CS3 standard was analyzed at the beginning and end of each 12-hour analysis sequence. The absolute retention time (RT) of  $^{13}\text{C}_{12}$ -1,2,3,4-TCDD exceeded 25.0 minutes on the DB-5 column. The relative retention times (RRTs) of the native and labeled PCDDs/PCDFs were within QC limits. All CDDs/CDFs in the CS3 standard were within their respective ion abundance ratio limits. The peaks representing both native and labeled analytes in the CS3 standard had Signal-to-Noise (S/N) ratios  $\geq 10.0$ . The CS3 results were within QC limits.

**6. Initial Calibration: Acceptable.**

The relative ion abundance criteria were met for all CDD/CDF peaks. The RTs of the isomers were within the appropriate WDM RT windows. The absolute RT of  $^{13}\text{C}_{12}$ -1,2,3,4-TCDD exceeded 25 minutes on the DB-5 column. For all calibration solutions the S/N ratio was  $\geq 10.0$ . The %RSD of the five RRFs was within QC limits.

**7. Calibration Verification: Acceptable.**

All ion abundance ratio criteria were met. The RT of  $^{13}\text{C}_{12}$ -1,2,3,4-TCDD met the absolute RT criteria. The RRTs of the native and labeled CDDs/CDFs were within QC limits. The Signal-to-Noise (S/N) ratio was  $\geq 10.0$  for all CDD/CDF peaks. The measured RRFs and RRs of each analyte and standard were within QC limits.

**8. Identification Criteria: Acceptable.**

The RRTs for the 2,3,7,8-substituted compounds were within the appropriate windows. The RTs for the non-2,3,7,8-substituted compounds were within the RT windows established by the WDM. The SICP ion current responses for the two quantitation ions for each analyte maximized simultaneously (within 2 seconds). For each positive result, the S/N ratio was  $>2.5$  and the detector has not been saturated. Ion abundance ratios were within QC limits.

**9. Method Blank Analysis: Satisfactory.**

A method blank was prepared at the required frequency of every time samples were extracted for each matrix and concentration or every 20 samples (whichever is greater). The method blanks are free from contamination in excess of the PQL for the native compounds. 1,2,3,4,6,7,8,9-OCDD was detected at 0.538 pg/g, 1,2,3,7,8-PeCDF (0.100 pg/g), 2,3,4,7,8-PeCDF (0.066 pg/g), 12,3,4,7,8-HxCDF (0.076 pg/g), 2,3,4,6,7,8-HxCDF (0.07 pg/g), and 1,2,3,4,6,7,8-HpCDF (0.1 pg/g). Positive sample results less than the quantitation limit (3 times the quantitation limit for 1,2,3,4,6,7,8,9-OCDD) were qualified as not detected (U).

**10. Laboratory Control Sample (LCS) Analysis: Acceptable.**

All LCS and LCS duplicate recoveries were within QC limits.

**11. Matrix Spike (MS)/MS Duplicate (MSD) Analysis: Satisfactory.**

All MS/MSD recoveries were within QC limits except low recoveries of 1,2,3,4,6,7,8-HpCDD (the associated sample result was qualified as an estimated quantity with a low bias [JL]) and low recoveries for 1,2,3,4,6,7,8,9-OCDD; no actions were taken based on this outlier as the native sample concentration was more than four times the spiked concentration.

**12. Toxicity Equivalency Factor and Isomer Specificity: Acceptable.**

All TEF calculations were properly performed.

**13. Second Column Confirmation: Acceptable.**

2,3,7,8-TCDF confirmation was performed and the positive result was reported from the second column.

**14. EDL and EMPC: Acceptable.**

Estimated Detection Limits (EDLs) and Estimated Maximum Possible Concentrations (EMPCs) were properly calculated. An EDL was reported for each undetected analyte. Analytes reported as EMPCs met all of the identification criteria (except for ion abundance ratios). All EMPC results were qualified as estimated quantities with a high bias (JH).

**15. Labeled Compound Recoveries: Acceptable.**

The labeled compound and internal standard recoveries were within the required limits. The S/N ratio of the labeled compounds was  $\geq 10$ . The ion abundance ratios of the labeled compounds were within the required limits.

**17. Overall Assessment**

A total of 18 results were validated in this data memorandum. No sample results were qualified as estimated quantities (J) based on duplicate precision outliers, holding time outliers, incorrect sample containers, or sample temperature outliers. One sample result was qualified as an estimated quantity based on spike accuracy outliers. No sample results were rejected (R).

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, the OSRTI Directive "National Functional Guidelines for High Resolution Superfund Methods Data Review" (EPA-542-B-16-001, April 2016), and the analytical method(s). Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

H - The sample result is biased high.

J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

K - The bias of the sample is not known.

L - The sample result is biased low.

Q - Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.



- R - The data is rejected and unusable. The analyte may or may not be present in the sample.
- U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.

**Hi-Res Dioxins/Furans  
Certificate of Analysis  
Sample Summary**

Page 1 of 1

SDG Number: 15234  
Lab Sample ID: 15234001  
Client Sample: 8290 Soil  
Client ID: 19070001  
Batch ID: 41307  
Run Date: 08/01/2019 17:04  
Data File: b30jul19b\_6-4  
Prep Batch: 41305  
Prep Date: 29-JUL-19

Client: GELA001  
Date Collected: 07/10/2019 10:00  
Date Received: 07/12/2019 09:46  
  
Method: SW846 8290A  
Analyst: MLS  
  
Prep Method: SW846 3540C  
Prep Aliquot: 11.28 g

Project: GELA00518  
Matrix: SOIL  
%Moisture: 10.2  
Prep Basis: Dry Weight  
  
Instrument: HRP763  
Dilution: 1

CAS No.	Parmname	Qual	Result	EMPC	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD	J Q	0.430		pg/g	0.109	0.987
40321-76-4	1,2,3,7,8-PeCDD	J Q	1.96		pg/g	0.144	4.94
39227-28-6	1,2,3,4,7,8-HxCDD	J Q	4.08		pg/g	0.267	4.94
57653-85-7	1,2,3,6,7,8-HxCDD		11.3		pg/g	0.243	4.94
19408-74-3	1,2,3,7,8,9-HxCDD		6.89		pg/g	0.243	4.94
35822-46-9	1,2,3,4,6,7,8-HpCDD		304 JL		pg/g	0.693	4.94
3268-87-9	1,2,3,4,6,7,8,9-OCDD		2730		pg/g	1.23	9.87
51207-31-9	2,3,7,8-TCDF		2.66		pg/g	0.207	0.987
57117-41-6	1,2,3,7,8-PeCDF	<del>K</del>	<del>3.72</del>		pg/g	0.162	4.94 U
57117-31-4	2,3,4,7,8-PeCDF		6.47		pg/g	0.142	4.94
70648-26-9	1,2,3,4,7,8-HxCDF		8.79		pg/g	0.174	4.94
57117-44-9	1,2,3,6,7,8-HxCDF		8.27		pg/g	0.163	4.94
60851-34-5	2,3,4,6,7,8-HxCDF		9.68		pg/g	0.169	4.94
72918-21-9	1,2,3,7,8,9-HxCDF	J Q	2.56		pg/g	0.197	4.94
67562-39-4	1,2,3,4,6,7,8-HpCDF		64.0		pg/g	0.288	4.94
55673-89-7	1,2,3,4,7,8,9-HpCDF		5.60		pg/g	0.346	4.94
39001-02-0	1,2,3,4,6,7,8,9-OCDF		79.2		pg/g	0.430	9.87
41903-57-5	Total Tetrachlorodibenzo-p-dioxin	J Q	13.2	13.9	pg/g	0.109	0.987
36088-22-9	Total Pentachlorodibenzo-p-dioxin	<del>J</del>	<del>20.3</del> 29.95		pg/g	0.144	4.94
34465-46-8	Total Hexachlorodibenzo-p-dioxin	J	94.0		pg/g	0.243	4.94
37871-00-4	Total Heptachlorodibenzo-p-dioxin	J	573		pg/g	0.693	4.94
30402-14-3	Total Tetrachlorodibenzofuran	J Q	67.8	68.1	pg/g	0.207	0.987
30402-15-4	Total Pentachlorodibenzofuran	J	85.3		pg/g	0.0575	4.94
55684-94-1	Total Hexachlorodibenzofuran	J	116	117	pg/g	0.163	4.94
38998-75-3	Total Heptachlorodibenzofuran	<del>Mu</del>	138		pg/g	0.288	4.94
3333-30-0	TEQ WHO2005 ND=0		<del>14.5</del> 14.4		pg/g		
3333-30-1	TEQ WHO2005 ND=0.5		<del>14.5</del> 14.5		pg/g		

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		161	197	pg/g	81.7	(40%-135%)
13C-1,2,3,7,8-PeCDD		144	197	pg/g	72.7	(40%-135%)
13C-1,2,3,6,7,8-HxCDD		166	197	pg/g	84.1	(40%-135%)
13C-1,2,3,4,6,7,8-HpCDD		183	197	pg/g	92.7	(40%-135%)
13C-OCDD		343	395	pg/g	87.0	(40%-135%)
13C-2,3,7,8-TCDF		170	197	pg/g	86.2	(40%-135%)
13C-1,2,3,7,8-PeCDF		150	197	pg/g	76.0	(40%-135%)
13C-1,2,3,6,7,8-HxCDF		162	197	pg/g	82.1	(40%-135%)
13C-1,2,3,4,6,7,8-HpCDF		168	197	pg/g	85.0	(40%-135%)

**Comments:**

- J Value is estimated  
K Estimated Maximum Possible Concentration  
U Analyte was analyzed for, but not detected above the specified detection limit.

CWB 2617

Hi-Res Dioxins/Furans  
Certificate of Analysis  
Sample Summary

SDG Number: 15234  
Lab Sample ID: 15234001  
Client Sample: 8290 Soil  
Client ID: 19070001  
Batch ID: 41307  
Run Date: 08/05/2019 17:39  
Data File: A05AUG19A-8  
Prep Batch: 41305  
Prep Date: 29-JUL-19

Client: GELA001  
Date Collected: 07/10/2019 10:00  
Date Received: 07/12/2019 09:46  
Method: SW846 8290A  
Analyst: MJC  
Prep Method: SW846 3540C  
Prep Aliquot: 11.28 g

Project: GELA00518  
Matrix: SOIL  
%Moisture: 10.2  
Prep Basis: Dry Weight  
Instrument: HRP750  
Dilution: 1

CAS No.	Parmname	Qual	Result	EMPC	Units	EDL	PQL
51207-31-9	2,3,7,8-TCDF		2.74		pg/g	0.413	0.987

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
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## Comments:

- J Value is estimated  
K Estimated Maximum Possible Concentration  
U Analyte was analyzed for, but not detected above the specified detection limit.

JMW 8-26-19



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Seattle, Washington 98104  
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**MEMORANDUM**

DATE: August 26, 2019

TO: Seth Wing, START-IV Project Manager, E & E, Seattle, WA

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington *MW*

SUBJ: **Dioxin/Furan Data Quality Assurance Review, May Creek Removal Action Site, Renton, Washington**

REF: TO: TO-68HE0718F0470      PAN: 1004530.0470.001.01

The data quality assurance review of one soil sample collected from the May Creek Removal Action site in Renton, Washington, has been completed. Polychlorinated Dibenzo-p-Dioxin (PCDD)/ Polychlorinated Dibenzo Furan (PCDF) analyses (EPA SW-846 Method 8290) were performed by Cape Fear Analytical, Inc., Wilmington, North Carolina. All sample analyses were evaluated following EPA's Stage 4 Data Validation Manual Process (S4VM).

The sample was numbered: 19070111

**Data Qualifications:**

**1. Holding Times, Storage, and Preservation: Acceptable.**

The sample was maintained on ice in the dark from collection until extraction. The sample temperature upon receipt was 4.9°C, within the QC limits of < 6°C. The sample was collected on July 11, 2019, was extracted on July 16, 2019, and was analyzed on July 18, 2019. There are no holding time limits for Method 8290 soil samples.

**2. Mass Calibration and Mass Spectrometer Resolution: Acceptable.**

Mass spectrometer (MS) resolution of  $\geq 10,000$  was demonstrated at the beginning and end of each 12-hour analytical sequence.

**3. Window Defining Mix: Acceptable.**

The window defining mix (WDM) was analyzed after the initial MS resolution analysis and prior to calibration standards. Positive sample results were within the retention time limits established by the WDM for the corresponding homologue.

**4. Chromatographic Resolution: Acceptable.**

The chromatographic peak separation on a DB-5 (or equivalent) column between the 2,3,7,8-TCDD peak and the 1,2,3,8-TCDD peak was resolved with a valley of  $\leq 25\%$ .

**5. Instrument Stability: Acceptable.**

The CS3 standard was analyzed at the beginning and end of each 12-hour analysis sequence. The absolute retention time (RT) of  $^{13}\text{C}_{12}$ -1,2,3,4-TCDD and exceeded 25.0 minutes on the DB-5 column. The relative retention times (RRTs) of the native and labeled PCDDs/PCDFs were within QC limits. All CDDs/CDFs in the CS3 standard were within their respective ion abundance ratio limits. The peaks representing both native and labeled analytes in the CS3 standard had Signal-to-Noise (S/N) ratios  $\geq 10.0$ . The CS3 results were within QC limits.

**6. Initial Calibration: Acceptable.**

The relative ion abundance criteria were met for all CDD/CDF peaks. The RTs of the isomers were within the appropriate WDM RT windows. The absolute RT of  $^{13}\text{C}_{12}$ -1,2,3,4-TCDD exceeded 25 minutes on the DB-5 column. For all calibration solutions the S/N ratio was  $\geq 10.0$ . The %RSD of the five RRFs was within QC limits.

**7. Calibration Verification: Acceptable.**

All ion abundance ratio criteria were met. The RT of  $^{13}\text{C}_{12}$ -1,2,3,4-TCDD met the absolute RT criteria. The RRTs of the native and labeled CDDs/CDFs were within QC limits. The Signal-to-Noise (S/N) ratio was  $\geq 10.0$  for all CDD/CDF peaks. The measured RRFs and RRs of each analyte and standard were within QC limits.

**8. Identification Criteria: Acceptable.**

The RRTs for the 2,3,7,8-substituted compounds were within the appropriate windows. The RTs for the non-2,3,7,8-substituted compounds were within the RT windows established by the WDM. The SICP ion current responses for the two quantitation ions for each analyte maximized simultaneously (within 2 seconds). For each positive result, the S/N ratio was  $>2.5$  and the detector has not been saturated. Ion abundance ratios were within QC limits.

**9. Method Blank Analysis: Satisfactory.**

A method blank was prepared at the required frequency of every time samples were extracted for each matrix and concentration or every 20 samples (whichever is greater). The method blanks are free from contamination in excess of the PQL for the native compounds. 1,2,3,4,6,7,8-HpCDD (0.206 pg/g), 1,2,3,4,6,7,8,9-OCDD (0.616 pg/g), 2,3,7,8-TCDF (0.132 pg/g), 1,2,3,7,8-PeCDF (0.096 pg/g), 1,2,3,4,7,8-HxCDF (0.08 pg/g), 2,3,4,6,7,8-HxCDF (0.074 pg/g), 1,2,3,4,6,7,8-HpCDF (0.12 pg/g), 1,2,3,4,7,8,9-HpCDF (0.098 pg/g), and 1,2,3,4,6,7,8,9-OCDF (0.224 pg/g). Positive sample results less than the quantitation limit (3 times the quantitation limit for 1,2,3,4,6,7,8,9-OCDD and 1,2,3,4,6,7,8,9-OCDF) were qualified as not detected (U).

**10. Laboratory Control Sample (LCS) Analysis: Acceptable.**

All LCS and LCS duplicate recoveries were within QC limits.

**11. Matrix Spike (MS)/MS Duplicate (MSD) Analysis: Satisfactory.**

All MS/MSD recoveries were within QC limits except a high recovery for 1,2,3,4,6,7,8,9-OCDD; no actions were taken based on this outlier as the native sample concentration was more than four times the spiked concentration.

**12. Toxicity Equivalency Factor and Isomer Specificity: Acceptable.**

All TEF calculations were properly performed.

**13. Second Column Confirmation: Acceptable.**

2,3,7,8-TCDF confirmation was not required as this analyte was not detected in the sample.

**14. EDL and EMPC: Acceptable.**

Estimated Detection Limits (EDLs) and Estimated Maximum Possible Concentrations (EMPCs) were properly calculated. An EDL was reported for each undetected analyte. Analytes reported as EMPCs met all of the identification criteria (except for ion abundance ratios). All EMPC results were qualified as estimated quantities with a high bias (JH).

**15. Labeled Compound Recoveries: Acceptable.**

The labeled compound and internal standard recoveries were within the required limits. The S/N ratio of the labeled compounds was  $\geq 10$ . The ion abundance ratios of the labeled compounds were within the required limits.

**17. Overall Assessment**

A total of 18 results were validated in this data memorandum. No sample results were qualified as estimated quantities (J) based on duplicate precision outliers, holding time outliers, incorrect sample containers, spike accuracy outliers, or sample temperature outliers. No sample results were rejected (R).

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, the OSRTI Directive "National Functional Guidelines for High Resolution Superfund Methods Data Review" (EPA-542-B-16-001, April 2016), and the analytical method(s). Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

H - The sample result is biased high.

J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

K - The bias of the sample is not known.

L - The sample result is biased low.

Q - Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.

R - The data is rejected and unusable. The analyte may or may not be present in the sample.

- U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.

**Hi-Res Dioxins/Furans  
Certificate of Analysis  
Sample Summary**

Page 1 of 1

SDG Number: 484753  
Lab Sample ID: 15233001  
Client Sample: 8290 Soil  
Client ID: 19070111  
Batch ID: 41183  
Run Date: 07/18/2019 18:19  
Data File: b17jul19a\_3-4  
Prep Batch: 41181  
Prep Date: 16-JUL-19

Client: GELA001  
Date Collected: 07/11/2019 14:45  
Date Received: 07/12/2019 09:46  
Method: SW846 8290A  
Analyst: MJC  
Prep Method: SW846 3540C  
Prep Aliquot: 11.84 g

Project: GELA00518  
Matrix: SOIL  
%Moisture: 9.6  
Prep Basis: Dry Weight  
Instrument: HRP763  
Dilution: 1

CAS No.	Parmname	Qual	Result	EMPC	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD	J	11.8	0.387	pg/g	0.073	0.934
40321-76-4	1,2,3,7,8-PeCDD	J	0.375		pg/g	0.0777	4.67
39227-28-6	1,2,3,4,7,8-HxCDD	J	0.837		pg/g	0.120	4.67
57653-85-7	1,2,3,6,7,8-HxCDD	J	3.33		pg/g	0.104	4.67
19408-74-3	1,2,3,7,8,9-HxCDD	J	1.73		pg/g	0.107	4.67
35822-46-9	1,2,3,4,6,7,8-HpCDD		77.0		pg/g	0.377	4.67
3268-87-9	1,2,3,4,6,7,8,9-OCDD		709		pg/g	0.656	9.34
51207-31-9	2,3,7,8-TCDF	J	0.654		pg/g	0.194	0.934
57117-41-6	1,2,3,7,8-PeCDF	J	0.450		pg/g	0.0749	4.67
57117-31-4	2,3,4,7,8-PeCDF	J	2.70		pg/g	0.0663	4.67
70648-26-9	1,2,3,4,7,8-HxCDF	J	1.53		pg/g	0.114	4.67
57117-44-9	1,2,3,6,7,8-HxCDF	J	1.18		pg/g	0.104	4.67
60851-34-5	2,3,4,6,7,8-HxCDF	J	1.93		pg/g	0.107	4.67
72918-21-9	1,2,3,7,8,9-HxCDF	J	0.489		pg/g	0.124	4.67
67562-39-4	1,2,3,4,6,7,8-HpCDF		12.0		pg/g	0.159	4.67
55673-89-7	1,2,3,4,7,8-HpCDF	J	0.986		pg/g	0.182	4.67
39001-02-0	1,2,3,4,6,7,8,9-OCDF		25.3		pg/g	0.247	9.34
41903-57-5	Total Tetrachlorodibenzo-p-dioxin	J	0.745	2.14	pg/g	0.073	0.934
36088-22-9	Total Pentachlorodibenzo-p-dioxin	J	5.26	5.43	pg/g	0.0777	4.67
34465-46-8	Total Hexachlorodibenzo-p-dioxin	J	23.1		pg/g	0.104	4.67
37871-00-4	Total Heptachlorodibenzo-p-dioxin	J	146		pg/g	0.377	4.67
30402-14-3	Total Tetrachlorodibenzofuran	J	11.8	12.6	pg/g	0.194	0.934
30402-15-4	Total Pentachlorodibenzofuran	J	31.8	33.1	pg/g	0.0385	4.67
55684-94-1	Total Hexachlorodibenzofuran	J	34.1	35.9	pg/g	0.104	4.67
38998-75-3	Total Heptachlorodibenzofuran	J	36.6		pg/g	0.159	4.67
3333-30-0	TEQ WHO2005 ND=0		2.03	2.43	pg/g		
3333-30-1	TEQ WHO2005 ND=0.5		3.48	3.87	pg/g		

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		135	187	pg/g	72.5	(40%-135%)
13C-1,2,3,7,8-PeCDD		133	187	pg/g	71.0	(40%-135%)
13C-1,2,3,6,7,8-HxCDD		145	187	pg/g	77.5	(40%-135%)
13C-1,2,3,4,6,7,8-HpCDD		153	187	pg/g	82.0	(40%-135%)
13C-OCDD		278	374	pg/g	74.4	(40%-135%)
13C-2,3,7,8-TCDF		137	187	pg/g	73.4	(40%-135%)
13C-1,2,3,7,8-PeCDF		138	187	pg/g	73.7	(40%-135%)
13C-1,2,3,6,7,8-HxCDF		142	187	pg/g	76.0	(40%-135%)
13C-1,2,3,4,6,7,8-HpCDF		145	187	pg/g	77.9	(40%-135%)

**Comments:**

- B** The target analyte was detected in the associated blank.  
**J** Value is estimated  
**K** Estimated Maximum Possible Concentration

*MW 8-26-19*





## ecology and environment, inc.

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### MEMORANDUM

DATE: January 17, 2019

TO: Steve Hall, START-IV Project Manager, E & E, Seattle, WA

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington *MW*

SUBJ: **Dioxin/Furan Data Quality Assurance Review, May Creek Removal Action Site, Renton, Washington**

REF: TO: TO-68HE0718F0470 PAN: 1004530.0470.001.01

The data quality assurance review of four soil samples collected from the May Creek Removal Action site in Renton, Washington, has been completed. Polychlorinated Dibenzo-p-Dioxin (PCDD)/Polychlorinated Dibenzo Furan (PCDF) analyses (EPA SW-846 Method 8290) were performed by Cape Fear Analytical, Inc., Wilmington, North Carolina. All sample analyses were evaluated following EPA's 2B and/or 4 Data Validation Manual Process (S2B/4VM).

The samples were numbered:

18111106      18111108      18111112      18111113

#### Data Qualifications:

**1. Holding Times, Storage, and Preservation: Satisfactory.**

The samples were maintained on ice in the dark from collection until extraction. The sample temperature upon receipt was 7.8 °C, slightly above the QC limits of < 6°C; no actions were taken based on this slight discrepancy. The samples were collected on November 27 and 28, 2018, were extracted on December 20, 2018, and were analyzed on January 1, 2019, therefore meeting QC criteria of less than 14 days between collection and extraction and less than 30 days between extraction and analysis.

**2. Mass Calibration and Mass Spectrometer Resolution: Acceptable.**

Mass spectrometer (MS) resolution of  $\geq 10,000$  was demonstrated at the beginning and end of each 12-hour analytical sequence.

**3. Window Defining Mix: Acceptable.**

The window defining mix (WDM) was analyzed after the initial MS resolution analysis and prior to calibration standards. Positive sample results were within the retention time limits established by the WDM for the corresponding homologue.

**4. Chromatographic Resolution: Acceptable.**

The chromatographic peak separation on a DB-5 (or equivalent) column between the 2,3,7,8-TCDD peak and the 1,2,3,8-TCDD peak was resolved with a valley of  $\leq 25\%$ .

**5. Instrument Stability: Acceptable.**

The CS3 standard was analyzed at the beginning and end of each 12-hour analysis sequence. The absolute retention time (RT) of  $^{13}\text{C}_{12}$ -1,2,3,4-TCDD and exceeded 25.0 minutes on the DB-5 column. The relative retention times (RRTs) of the native and labeled PCDDs/PCDFs were within QC limits. All CDDs/CDFs in the CS3 standard were within their respective ion abundance ratio limits. The peaks representing both native and labeled analytes in the CS3 standard had Signal-to-Noise (S/N) ratios  $\geq 10.0$ . The CS3 results were within QC limits.

**6. Initial Calibration: Acceptable.**

The relative ion abundance criteria were met for all CDD/CDF peaks. The RTs of the isomers were within the appropriate WDM RT windows. The absolute RT of  $^{13}\text{C}_{12}$ -1,2,3,4-TCDD exceeded 25 minutes on the DB-5 column. For all calibration solutions the S/N ratio was  $\geq 10.0$ . The %RSD of the five RRFs was within QC limits.

**7. Calibration Verification: Acceptable.**

All ion abundance ratio criteria were met. The RT of  $^{13}\text{C}_{12}$ -1,2,3,4-TCDD met the absolute RT criteria. The RRTs of the native and labeled CDDs/CDFs were within QC limits. The Signal-to-Noise (S/N) ratio was  $\geq 10.0$  for all CDD/CDF peaks. The measured RRFs and RRs of each analyte and standard were within QC limits.

**8. Identification Criteria: Acceptable.**

The RRTs for the 2,3,7,8-substituted compounds were within the appropriate windows. The RTs for the non-2,3,7,8-substituted compounds were within the RT windows established by the WDM. The SICP ion current responses for the two quantitation ions for each analyte maximized simultaneously (within 2 seconds). For each positive result, the S/N ratio was  $>2.5$  and the detector has not been saturated. Ion abundance ratios were within QC limits.

**9. Method Blank Analysis: Satisfactory.**

A method blank was prepared at the required frequency of every time samples were extracted for each matrix and concentration or every 20 samples (whichever is greater). The method blanks are free from contamination in excess of the PQL for the native compounds. 1,2,3,4,6,7,8,9-OCDD was detected at 3.62 pg/g and 1,2,3,4,6,7,8-HpCDF was detected at 5.14 pg/g in the method blank; positive sample results less than the quantitation limit (3 times the quantitation limit for 1,2,3,4,6,7,8,9-OCDD) were qualified as not detected (U).

**10. Laboratory Control Sample (LCS) Analysis: Acceptable.**

All LCS recoveries were within QC limits.

**11. Matrix Spike (MS)/MS Duplicate (MSD) Analysis: Satisfactory.**

All MS/MSD recoveries were within QC limits except one high and one low recovery for 1,2,3,4,6,7,8,9-OCDD in the spike of sample 18111113; the associated sample result was qualified as an estimated quantity with an unknown bias (JK). The MS/MSD relative percent difference for 1,2,3,4,6,7,8,9-OCDD exceeded QC limits; no additional actions were taken.

**12. Performance Evaluation Samples: Not Provided.**

Performance evaluation samples were not provided to the laboratory.

**13. Toxicity Equivalency Factor and Isomer Specificity: Acceptable.**

All TEF calculations were properly performed.

**14. Second Column Confirmation: Not Applicable.**

2,3,7,8-TCDF was not detected in any sample; therefore, second column confirmation was not required.

**15. EDL and EMPC: Acceptable.**

Estimated Detection Limits (EDLs) and Estimated Maximum Possible Concentrations (EMPCs) were properly calculated. An EDL was reported for each undetected analyte. Analytes reported as EMPCs met all of the identification criteria (except for ion abundance ratios). All EMPC results were qualified as estimated quantities with a high bias (JH).

**16. Labeled Compound Recoveries: Acceptable.**

The labeled compound and internal standard recoveries were within the required limits. The S/N ratio of the labeled compounds was  $\geq 10$ . The ion abundance ratios of the labeled compounds were within the required limits.

**17. Overall Assessment**

A total of 68 results were validated in this data memorandum. No sample results were qualified as estimated quantities (J) based on duplicate precision outliers, spike accuracy outliers, holding time outliers, incorrect sample containers, or sample temperature outliers. No sample results were rejected (R). The following analytes were detected in the method blanks 1,2,3,4,6,7,8,9-OCDD, 1,2,3,4,6,7,8-HpCDF.

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, the OSRTI Directive "National Functional Guidelines for High Resolution Superfund Methods Data Review" (EPA-542-B-16-001, April 2016), and the analytical method(s). Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

H - The sample result is biased high.

J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

- K - The bias of the sample is not known.
- L - The sample result is biased low.
- Q - Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.
- R - The data is rejected and unusable. The analyte may or may not be present in the sample.
- U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.

**Hi-Res Dioxins/Furans  
Certificate of Analysis  
Sample Summary**

Page 1 of 1

SDG Number: 14328  
Lab Sample ID: 14328006  
Client Sample: 8290 Soil  
Client ID: 18111106 TP02  
Batch ID: 39533  
Run Date: 01/01/2019 13:29  
Data File: A29DEC18A\_8-8  
Prep Batch: 39530  
Prep Date: 20-DEC-18

Client: GELA001  
Date Collected: 11/27/2018 11:15  
Date Received: 11/30/2018 13:22  
  
Method: SW846 8290A  
Analyst: MJC  
  
Prep Method: SW846 3540C  
Prep Aliquot: 13.49 g

Project: GELA00518  
Matrix: SOIL  
%Moisture: 24.8  
Prep Basis: Dry Weight  
  
Instrument: HRP750  
Dilution: 1

CAS No.	Parname	Qual	Result	EMPC	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD	U	0.278		pg/g	0.278	0.985
40321-76-4	1,2,3,7,8-PeCDD	U	0.24		pg/g	0.240	4.93
39227-28-6	1,2,3,4,7,8-HxCDD	U	0.702		pg/g	0.702	4.93
57653-85-7	1,2,3,6,7,8-HxCDD	J/K/H		0.668	pg/g	0.593	4.93
19408-74-3	1,2,3,7,8,9-HxCDD	U	0.668		pg/g	0.668	4.93
35822-46-9	1,2,3,4,6,7,8-HpCDD		14.1		pg/g	1.05	4.93
3268-87-9	1,2,3,4,6,7,8,9-OCDD		184		pg/g	4.06	9.85
51207-31-9	2,3,7,8-TCDF	U	0.526		pg/g	0.526	0.985
57117-41-6	1,2,3,7,8-PeCDF	U	0.406		pg/g	0.406	4.93
57117-31-4	2,3,4,7,8-PeCDF	J/K/H		0.402	pg/g	0.363	4.93
70648-26-9	1,2,3,4,7,8-HxCDF	U	0.499		pg/g	0.499	4.93
57117-44-9	1,2,3,6,7,8-HxCDF	U	0.434		pg/g	0.434	4.93
60851-34-5	2,3,4,6,7,8-HxCDF	U	0.485		pg/g	0.485	4.93
72918-21-9	1,2,3,7,8,9-HxCDF	U	0.615		pg/g	0.615	4.93
67562-39-4	1,2,3,4,6,7,8-HpCDF	U/K	3.88		pg/g	0.428	4.93
55673-89-7	1,2,3,4,7,8,9-HpCDF	U	0.579		pg/g	0.579	4.93
39001-02-0	1,2,3,4,6,7,8,9-OCDF		15.1		pg/g	1.20	9.85
41903-57-5	Total Tetrachlorodibenzo-p-dioxin	U	0.278		pg/g	0.278	0.985
36088-22-9	Total Pentachlorodibenzo-p-dioxin	J	0.323		pg/g	0.240	4.93
34465-46-8	Total Hexachlorodibenzo-p-dioxin	J	3.00	3.67	pg/g	0.593	4.93
37871-00-4	Total Heptachlorodibenzo-p-dioxin		31.4		pg/g	1.05	4.93
30402-14-3	Total Tetrachlorodibenzofuran	J	0.694		pg/g	0.526	0.985
30402-15-4	Total Pentachlorodibenzofuran	J	3.71	4.11	pg/g	0.119	4.93
55684-94-1	Total Hexachlorodibenzofuran		5.22	5.81	pg/g	0.434	4.93
38998-75-3	Total Heptachlorodibenzofuran	J	<del>13.1</del>		pg/g	0.428	4.93
3333-30-0	TEQ WHO2005 ND=0		<del>0.788</del> 0.720	0.427	pg/g		
3333-30-1	TEQ WHO2005 ND=0.5		<del>0.788</del> 0.769	0.892	pg/g		

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		133	197	pg/g	67.6	(40%-135%)
13C-1,2,3,7,8-PeCDD		175	197	pg/g	89.0	(40%-135%)
13C-1,2,3,6,7,8-HxCDD		138	197	pg/g	70.2	(40%-135%)
13C-1,2,3,4,6,7,8-HpCDD		174	197	pg/g	88.3	(40%-135%)
13C-OCDD		352	394	pg/g	89.3	(40%-135%)
13C-2,3,7,8-TCDF		110	197	pg/g	55.7	(40%-135%)
13C-1,2,3,7,8-PeCDF		162	197	pg/g	82.2	(40%-135%)
13C-1,2,3,6,7,8-HxCDF		127	197	pg/g	64.4	(40%-135%)
13C-1,2,3,4,6,7,8-HpCDF		153	197	pg/g	77.7	(40%-135%)

**Comments:**

- J Value is estimated  
K Estimated Maximum Possible Concentration  
U Analyte was analyzed for, but not detected above the specified detection limit.

*MW H7-19*

**Hi-Res Dioxins/Furans  
Certificate of Analysis  
Sample Summary**

Page 1 of 1

SDG Number: 14328  
Lab Sample ID: 14328008  
Client Sample: 8290 Soil  
Client ID: 18111108 TP04  
Batch ID: 39533  
Run Date: 01/01/2019 14:17  
Data File: A29DEC18A\_8-9  
Prep Batch: 39530  
Prep Date: 20-DEC-18

Client: GELA001  
Date Collected: 11/27/2018 16:10  
Date Received: 11/30/2018 13:22  
  
Method: SW846 8290A  
Analyst: MJC  
  
Prep Method: SW846 3540C  
Prep Aliquot: 12.85 g

Project: GELA00518  
Matrix: SOIL  
%Moisture: 21.6  
Prep Basis: Dry Weight  
  
Instrument: HRP750  
Dilution: 1

CAS No.	Parname	Qual	Result	EMPC	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD	U	0.457		pg/g	0.457	0.993
40321-76-4	1,2,3,7,8-PeCDD	U	0.341		pg/g	0.341	4.96
39227-28-6	1,2,3,4,7,8-HxCDD	U	0.673		pg/g	0.673	4.96
57653-85-7	1,2,3,6,7,8-HxCDD	U	0.568		pg/g	0.568	4.96
19408-74-3	1,2,3,7,8,9-HxCDD	U	0.641		pg/g	0.641	4.96
35822-46-9	1,2,3,4,6,7,8-HpCDD		5.34		pg/g	1.23	4.96
3268-87-9	1,2,3,4,6,7,8,9-OCDD		59.8		pg/g	4.82	9.93
51207-31-9	2,3,7,8-TCDF	U	0.689		pg/g	0.689	0.993
57117-41-6	1,2,3,7,8-PeCDF	U	0.441		pg/g	0.441	4.96
57117-31-4	2,3,4,7,8-PeCDF	U	0.393		pg/g	0.393	4.96
70648-26-9	1,2,3,4,7,8-HxCDF	U	0.508		pg/g	0.508	4.96
57117-44-9	1,2,3,6,7,8-HxCDF	U	0.441		pg/g	0.441	4.96
60851-34-5	2,3,4,6,7,8-HxCDF	U	0.494		pg/g	0.494	4.96
72918-21-9	1,2,3,7,8,9-HxCDF	U	0.625		pg/g	0.625	4.96
67562-39-4	1,2,3,4,6,7,8-HpCDF	U	1.01		pg/g	0.471	4.96
55673-89-7	1,2,3,4,7,8,9-HpCDF	U	0.637		pg/g	0.637	4.96
39001-02-0	1,2,3,4,6,7,8,9-OCDF	U	1.03		pg/g	1.03	9.93
41903-57-5	Total Tetrachlorodibenzo-p-dioxin	U	0.457		pg/g	0.457	0.993
36088-22-9	Total Pentachlorodibenzo-p-dioxin	U	0.341		pg/g	0.341	4.96
34465-46-8	Total Hexachlorodibenzo-p-dioxin	J	0.959	1.69	pg/g	0.568	4.96
37871-00-4	Total Heptachlorodibenzo-p-dioxin		10.8		pg/g	1.23	4.96
30402-14-3	Total Tetrachlorodibenzofuran	U	0.689		pg/g	0.689	0.993
30402-15-4	Total Pentachlorodibenzofuran	U	0.272	0.443	pg/g	0.272	4.96
55684-94-1	Total Hexachlorodibenzofuran	J	0.842	1.47	pg/g	0.441	4.96
38998-75-3	Total Heptachlorodibenzofuran	J	2.22	1.32	pg/g	0.471	4.96
3333-30-0	TEQ WHO2005 ND=0		0.0714	0.0815	pg/g		
3333-30-1	TEQ WHO2005 ND=0.5		0.776	0.781	pg/g		

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		122	199	pg/g	61.3	(40%-135%)
13C-1,2,3,7,8-PeCDD		167	199	pg/g	84.0	(40%-135%)
13C-1,2,3,6,7,8-HxCDD		128	199	pg/g	64.4	(40%-135%)
13C-1,2,3,4,6,7,8-HpCDD		151	199	pg/g	75.9	(40%-135%)
13C-OCDD		274	397	pg/g	68.9	(40%-135%)
13C-2,3,7,8-TCDF		93.4	199	pg/g	47.1	(40%-135%)
13C-1,2,3,7,8-PeCDF		150	199	pg/g	75.3	(40%-135%)
13C-1,2,3,6,7,8-HxCDF		117	199	pg/g	59.0	(40%-135%)
13C-1,2,3,4,6,7,8-HpCDF		136	199	pg/g	68.3	(40%-135%)

**Comments:**

- J Value is estimated  
K Estimated Maximum Possible Concentration  
U Analyte was analyzed for, but not detected above the specified detection limit.

*MW 17710*

## Hi-Res Dioxins/Furans

Page 1 of 1

## Certificate of Analysis

## Sample Summary

SDG Number: 14328  
 Lab Sample ID: 14328003  
 Client Sample: 8290 Soil  
 Client ID: 18111112 TP07  
 Batch ID: 39533  
 Run Date: 01/01/2019 10:16  
 Data File: A29DEC18A\_8-4  
 Prep Batch: 39530  
 Prep Date: 20-DEC-18

Client: GELA001  
 Date Collected: 11/28/2018 11:18  
 Date Received: 11/30/2018 13:22  
 Method: SW846 8290A  
 Analyst: MJC  
 Prep Method: SW846 3540C  
 Prep Aliquot: 11.75 g

Project: GELA00518  
 Matrix: SOIL  
 %Moisture: 14.2  
 Prep Basis: Dry Weight  
 Instrument: HRP750  
 Dilution: 1

CAS No.	Parmname	Qual	Result	EMPC	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD	U	0.236		pg/g	0.236	0.991
40321-76-4	1,2,3,7,8-PeCDD	U	0.2		pg/g	0.200	4.96
39227-28-6	1,2,3,4,7,8-HxCDD	U	0.426		pg/g	0.426	4.96
57653-85-7	1,2,3,6,7,8-HxCDD	U	0.361		pg/g	0.361	4.96
19408-74-3	1,2,3,7,8,9-HxCDD	U	0.406		pg/g	0.406	4.96
35822-46-9	1,2,3,4,6,7,8-HpCDD	J	1.16		pg/g	0.983	4.96
3268-87-9	1,2,3,4,6,7,8,9-OCDD	U	13.7		pg/g	3.15	9.91
51207-31-9	2,3,7,8-TCDF	U	0.369		pg/g	0.369	0.991
57117-41-6	1,2,3,7,8-PeCDF	U	0.234		pg/g	0.234	4.96
57117-31-4	2,3,4,7,8-PeCDF	U	0.21		pg/g	0.210	4.96
70648-26-9	1,2,3,4,7,8-HxCDF	U	0.438		pg/g	0.438	4.96
57117-44-9	1,2,3,6,7,8-HxCDF	U	0.381		pg/g	0.381	4.96
60851-34-5	2,3,4,6,7,8-HxCDF	U	0.424		pg/g	0.424	4.96
72918-21-9	1,2,3,7,8,9-HxCDF	U	0.537		pg/g	0.537	4.96
67562-39-4	1,2,3,4,6,7,8-HpCDF	U	0.706		pg/g	0.424	4.96
55673-89-7	1,2,3,4,7,8,9-HpCDF	U	0.575		pg/g	0.575	4.96
39001-02-0	1,2,3,4,6,7,8,9-OCDF	J	0.823		pg/g	0.781	9.91
41903-57-5	Total Tetrachlorodibenzo-p-dioxin	U	0.236		pg/g	0.236	0.991
36088-22-9	Total Pentachlorodibenzo-p-dioxin	U	0.2		pg/g	0.200	4.96
34465-46-8	Total Hexachlorodibenzo-p-dioxin	J	0.397		pg/g	0.361	4.96
37871-00-4	Total Heptachlorodibenzo-p-dioxin	J	3.09		pg/g	0.983	4.96
30402-14-3	Total Tetrachlorodibenzofuran	U	0.369		pg/g	0.369	0.991
30402-15-4	Total Pentachlorodibenzofuran	U	0.146	0.254	pg/g	0.146	4.96
55684-94-1	Total Hexachlorodibenzofuran	U	0.381	0.444	pg/g	0.381	4.96
38998-75-3	Total Heptachlorodibenzofuran	J	1.24	1.49	pg/g	0.424	4.96
3333-30-0	TEQ WHO2005 ND=0		0.023	0.023	pg/g		
3333-30-1	TEQ WHO2005 ND=0.5		0.446	0.446	pg/g		

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		145	198	pg/g	73.2	(40%-135%)
13C-1,2,3,7,8-PeCDD		187	198	pg/g	94.1	(40%-135%)
13C-1,2,3,6,7,8-HxCDD		135	198	pg/g	68.0	(40%-135%)
13C-1,2,3,4,6,7,8-HpCDD		161	198	pg/g	81.2	(40%-135%)
13C-OCDD		293	397	pg/g	73.9	(40%-135%)
13C-2,3,7,8-TCDF		119	198	pg/g	60.1	(40%-135%)
13C-1,2,3,7,8-PeCDF		173	198	pg/g	87.1	(40%-135%)
13C-1,2,3,6,7,8-HxCDF		125	198	pg/g	63.0	(40%-135%)
13C-1,2,3,4,6,7,8-HpCDF		145	198	pg/g	72.9	(40%-135%)

## Comments:

J Value is estimated

K Estimated Maximum Possible Concentration

U Analyte was analyzed for, but not detected above the specified detection limit.

aw H7+g

## Hi-Res Dioxins/Furans

Page 1 of 1

## Certificate of Analysis

## Sample Summary

SDG Number: 14328  
 Lab Sample ID: 14328004  
 Client Sample: 8290 Soil  
 Client ID: 18111113 TP08  
 Batch ID: 39533  
 Run Date: 01/01/2019 11:04  
 Data File: A29DEC18A\_8-5  
 Prep Batch: 39530  
 Prep Date: 20-DEC-18

Client: GELA001  
 Date Collected: 11/28/2018 13:50  
 Date Received: 11/30/2018 13:22  
 Method: SW846 8290A  
 Analyst: MJC  
 Prep Method: SW846 3540C  
 Prep Aliquot: 13.5 g

Project: GELA00518  
 Matrix: SOIL  
 %Moisture: 24.6  
 Prep Basis: Dry Weight  
 Instrument: HRP750  
 Dilution: 1

CAS No.	Parmname	Qual	Result	EMPC	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD	U	0.281		pg/g	0.281	0.983
40321-76-4	1,2,3,7,8-PeCDD	U	0.423		pg/g	0.423	4.91
39227-28-6	1,2,3,4,7,8-HxCDD	U	1.19		pg/g	1.19	4.91
57653-85-7	1,2,3,6,7,8-HxCDD	J Q	1.31		pg/g	1.00	4.91
19408-74-3	1,2,3,7,8,9-HxCDD	U	1.13		pg/g	1.13	4.91
35822-46-9	1,2,3,4,6,7,8-HpCDD		41.6		pg/g	2.00	4.91
3268-87-9	1,2,3,4,6,7,8,9-OCDD		461		pg/g	5.76	9.83
51207-31-9	2,3,7,8-TCDF	U	0.566		pg/g	0.566	0.983
57117-41-6	1,2,3,7,8-PeCDF	U	0.352		pg/g	0.352	4.91
57117-31-4	2,3,4,7,8-PeCDF	U	0.313		pg/g	0.313	4.91
70648-26-9	1,2,3,4,7,8-HxCDF	J Q	0.708		pg/g	0.476	4.91
57117-44-9	1,2,3,6,7,8-HxCDF	J K H		0.497	pg/g	0.413	4.91
60851-34-5	2,3,4,6,7,8-HxCDF	U	0.462		pg/g	0.462	4.91
72918-21-9	1,2,3,7,8,9-HxCDF	U	0.586		pg/g	0.586	4.91
67562-39-4	1,2,3,4,6,7,8-HpCDF		6.57		pg/g	0.607	4.91
55673-89-7	1,2,3,4,7,8,9-HpCDF	U	0.822		pg/g	0.822	4.91
39001-02-0	1,2,3,4,6,7,8,9-OCDF		19.3		pg/g	1.38	9.83
41903-57-5	Total Tetrachlorodibenzo-p-dioxin	U	0.281	0.511	pg/g	0.281	0.983
36088-22-9	Total Pentachlorodibenzo-p-dioxin	J	0.979	2.01	pg/g	0.423	4.91
34465-46-8	Total Hexachlorodibenzo-p-dioxin	J	12.2		pg/g	1.00	4.91
37871-00-4	Total Heptachlorodibenzo-p-dioxin		119		pg/g	2.00	4.91
30402-14-3	Total Tetrachlorodibenzofuran	U	0.566	0.576	pg/g	0.566	0.983
30402-15-4	Total Pentachlorodibenzofuran	J	1.46	2.32	pg/g	0.137	4.91
55684-94-1	Total Hexachlorodibenzofuran	J	4.66	9.40	pg/g	0.413	4.91
38998-75-3	Total Heptachlorodibenzofuran		24.7		pg/g	0.607	4.91
3333-30-0	TEQ WHO2005 ND=0		0.828	0.877	pg/g		
3333-30-1	TEQ WHO2005 ND=0.5		1.45	1.48	pg/g		

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		142	197	pg/g	72.4	(40%-135%)
13C-1,2,3,7,8-PeCDD		187	197	pg/g	95.2	(40%-135%)
13C-1,2,3,6,7,8-HxCDD		138	197	pg/g	70.3	(40%-135%)
13C-1,2,3,4,6,7,8-HpCDD		159	197	pg/g	81.0	(40%-135%)
13C-OCDD		338	393	pg/g	86.1	(40%-135%)
13C-2,3,7,8-TCDF		117	197	pg/g	59.4	(40%-135%)
13C-1,2,3,7,8-PeCDF		174	197	pg/g	88.7	(40%-135%)
13C-1,2,3,6,7,8-HxCDF		132	197	pg/g	66.9	(40%-135%)
13C-1,2,3,4,6,7,8-HpCDF		150	197	pg/g	76.1	(40%-135%)

## Comments:

J Value is estimated

K Estimated Maximum Possible Concentration

U Analyte was analyzed for, but not detected above the specified detection limit.

MW H719





## ecology and environment, inc.

Global Environmental Specialists

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### MEMORANDUM

DATE: January 31, 2019

TO: Steve Hall, START-IV Project Manager, E & E, Seattle, WA

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington *MW*

SUBJ: **Dioxin/Furan Data Quality Assurance Review, May Creek Removal Action Site, Renton, Washington**

REF: TO: TO-68HE0718F0470 PAN: 1004530.0470.001.01

The data quality assurance review of two soil samples collected from the May Creek Removal Action site in Renton, Washington, has been completed. Polychlorinated Dibenzo-p-Dioxin (PCDD)/Polychlorinated Dibenzo Furan (PCDF) analyses (EPA SW-846 Method 8290) were performed by Cape Fear Analytical, Inc., Wilmington, North Carolina. All sample analyses were evaluated following EPA's 2B and/or 4 Data Validation Manual Process (S2B/4VM).

The samples were numbered: 18111117 18111132

#### **Data Qualifications:**

**1. Holding Times, Storage, and Preservation: Acceptable.**

The samples were maintained on ice in the dark from collection until extraction. The sample temperature upon receipt was 4.7°C, within the QC limits of < 6°C. The samples were collected between December 10 and 12, 2018, were extracted on January 6, 2019, and were analyzed by January 18, 2019.

**2. Mass Calibration and Mass Spectrometer Resolution: Acceptable.**

Mass spectrometer (MS) resolution of  $\geq 10,000$  was demonstrated at the beginning and end of each 12-hour analytical sequence.

**3. Window Defining Mix: Acceptable.**

The window defining mix (WDM) was analyzed after the initial MS resolution analysis and prior to calibration standards. Positive sample results were within the retention time limits established by the WDM for the corresponding homologue.

**4. Chromatographic Resolution: Acceptable.**

The chromatographic peak separation on a DB-5 (or equivalent) column between the 2,3,7,8-TCDD peak and the 1,2,3,8-TCDD peak was resolved with a valley of  $\leq 25\%$ .

**5. Instrument Stability: Acceptable.**

The CS3 standard was analyzed at the beginning and end of each 12-hour analysis sequence. The absolute retention time (RT) of  $^{13}\text{C}_{12}$ -1,2,3,4-TCDD and exceeded 25.0 minutes on the DB-5 column. The relative retention times (RRTs) of the native and labeled PCDDs/PCDFs were within QC limits. All

CDDs/CDFs in the CS3 standard were within their respective ion abundance ratio limits. The peaks representing both native and labeled analytes in the CS3 standard had Signal-to-Noise (S/N) ratios  $\geq 10.0$ . The CS3 results were within QC limits.

**6. Initial Calibration: Acceptable.**

The relative ion abundance criteria were met for all CDD/CDF peaks. The RTs of the isomers were within the appropriate WDM RT windows. The absolute RT of  $^{13}\text{C}_{12}$ -1,2,3,4-TCDD exceeded 25 minutes on the DB-5 column. For all calibration solutions the S/N ratio was  $\geq 10.0$ . The %RSD of the five RRFs was within QC limits.

**7. Calibration Verification: Acceptable.**

All ion abundance ratio criteria were met. The RT of  $^{13}\text{C}_{12}$ -1,2,3,4-TCDD met the absolute RT criteria. The RRTs of the native and labeled CDDs/CDFs were within QC limits. The Signal-to-Noise (S/N) ratio was  $\geq 10.0$  for all CDD/CDF peaks. The measured RRFs and RRs of each analyte and standard were within QC limits.

**8. Identification Criteria: Acceptable.**

The RRTs for the 2,3,7,8-substituted compounds were within the appropriate windows. The RTs for the non-2,3,7,8-substituted compounds were within the RT windows established by the WDM. The SICP ion current responses for the two quantitation ions for each analyte maximized simultaneously (within 2 seconds). For each positive result, the S/N ratio was  $>2.5$  and the detector has not been saturated. Ion abundance ratios were within QC limits.

**9. Method Blank Analysis: Satisfactory.**

A method blank was prepared at the required frequency of every time samples were extracted for each matrix and concentration or every 20 samples (whichever is greater). The method blanks are free from contamination in excess of the PQL for the native compounds. 1,2,3,4,6,7,8-HpCDD (0.254 pg/g), 1,2,3,4,6,7,8,9-OCDD (1.84 pg/g), and 1,2,3,4,5,7,8,9-OCDF (0.430 pg/g) were detected in the method blank; positive sample results less than the quantitation limit (3 times the quantitation limit for 1,2,3,4,6,7,8,9-OCDD and 1,2,3,4,6,7,8,9-OCDF) were qualified as not detected (U).

**10. Laboratory Control Sample (LCS) Analysis: Acceptable.**

All LCS and LCS duplicate recoveries and relative percent differences were within QC limits.

**11. Performance Evaluation Samples: Not Provided.**

Performance evaluation samples were not provided to the laboratory.

**12. Toxicity Equivalency Factor and Isomer Specificity: Acceptable.**

All TEF calculations were properly performed.

**13. Second Column Confirmation: Acceptable.**

Second column confirmation was employed whenever 2,3,7,8-TCDF was detected in any sample. Quantitation was performed on both columns. The result from the secondary column was used for the

sample result.

**14. EDL and EMPC: Acceptable.**

Estimated Detection Limits (EDLs) and Estimated Maximum Possible Concentrations (EMPCs) were properly calculated. An EDL was reported for each undetected analyte. Analytes reported as EMPCs met all of the identification criteria (except for ion abundance ratios). All EMPC results were qualified as estimated quantities with a high bias (JH).

**15. Labeled Compound Recoveries: Acceptable.**

The labeled compound and internal standard recoveries were within the required limits. The S/N ratio of the labeled compounds was  $\geq 10$ . The ion abundance ratios of the labeled compounds were within the required limits.

**16. Overall Assessment**

A total of 34 results were validated in this data memorandum. No sample results were qualified as estimated quantities (J) based on duplicate precision outliers, spike accuracy outliers, holding time outliers, incorrect sample containers, or sample temperature outliers. No sample results were rejected (R). The following analytes were detected in the method blanks 1,2,3,4,6,7,8-HpCDD, 1,2,3,4,6,7,8,9-OCDD, and 1,2,3,4,5,7,8,9-OCDF. The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, the OSRTI Directive "National Functional Guidelines for High Resolution Superfund Methods Data Review" (EPA-542-B-16-001, April 2016), and the analytical method(s). Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

- H - The sample result is biased high.
- J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
- K - The bias of the sample is not known.
- L - The sample result is biased low.
- Q - Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.
- R - The data is rejected and unusable. The analyte may or may not be present in the sample.
- U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- UJ - The material was analyzed for but was not detected. The reported detection limit is estimated because QC criteria were not met.

**Hi-Res Dioxins/Furans  
Certificate of Analysis  
Sample Summary**

SDG Number: 14391  
Lab Sample ID: 14391001  
Client Sample: 8290 Soil  
Client ID: 18111117  
Batch ID: 39632  
Run Date: 01/16/2019 03:27  
Data File: A15JAN19B\_2-9  
Prep Batch: 39630  
Prep Date: 06-JAN-19

Client: GELA001  
Date Collected: 12/10/2018 11:30  
Date Received: 12/14/2018 11:10  
Method: SW846 8290A  
Analyst: MJC  
Prep Method: SW846 3540C  
Prep Aliquot: 13.96 g

Project: GELA00518  
Matrix: SOIL  
%Moisture: 23.5  
Prep Basis: Dry Weight  
Instrument: HRP750  
Dilution: 1

CAS No.	Parmname	Qual	Result	EMPC	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD	U	0.262		pg/g	0.262	0.936
40321-76-4	1,2,3,7,8-PeCDD	U	0.258		pg/g	0.258	4.68
39227-28-6	1,2,3,4,7,8-HxCDD	J Q	0.440		pg/g	0.232	4.68
57653-85-7	1,2,3,6,7,8-HxCDD	J Q	0.534		pg/g	0.208	4.68
19408-74-3	1,2,3,7,8,9-HxCDD	J K H		0.389	pg/g	0.219	4.68
35822-46-9	1,2,3,4,6,7,8-HpCDD		10.5		pg/g	0.476	4.68
3268-87-9	1,2,3,4,6,7,8,9-OCDD		65.4		pg/g	0.698	9.36
51207-31-9	2,3,7,8-TCDF	U	0.386		pg/g	0.386	0.936
57117-41-6	1,2,3,7,8-PeCDF	J Q	0.313		pg/g	0.223	4.68
57117-31-4	2,3,4,7,8-PeCDF	U	0.2		pg/g	0.200	4.68
70648-26-9	1,2,3,4,7,8-HxCDF	J K H		0.363	pg/g	0.264	4.68
57117-44-9	1,2,3,6,7,8-HxCDF	U	0.247		pg/g	0.247	4.68
60851-34-5	2,3,4,6,7,8-HxCDF	U	0.26		pg/g	0.260	4.68
72918-21-9	1,2,3,7,8,9-HxCDF	U	0.326		pg/g	0.326	4.68
67562-39-4	1,2,3,4,6,7,8-HpCDF	J Q	1.45		pg/g	0.166	4.68
55673-89-7	1,2,3,4,7,8,9-HpCDF	U	0.213		pg/g	0.213	4.68
39001-02-0	1,2,3,4,6,7,8,9-OCDF	U <del>0.213</del>	<del>0.213</del> 3.16		pg/g	0.704	9.36
41903-57-5	Total Tetrachlorodibenzo-p-dioxin	U	0.262	0.373	pg/g	0.262	0.936
36088-22-9	Total Pentachlorodibenzo-p-dioxin	J	0.311	0.938	pg/g	0.258	4.68
34465-46-8	Total Hexachlorodibenzo-p-dioxin	J	3.28	6.13	pg/g	0.208	4.68
37871-00-4	Total Heptachlorodibenzo-p-dioxin		21.3		pg/g	0.476	4.68
30402-14-3	Total Tetrachlorodibenzofuran	J	0.434		pg/g	0.386	0.936
30402-15-4	Total Pentachlorodibenzofuran	J	2.49		pg/g	0.071	4.68
55684-94-1	Total Hexachlorodibenzofuran	J	1.35	2.48	pg/g	0.247	4.68
38998-75-3	Total Heptachlorodibenzofuran	J	3.57		pg/g	0.166	4.68
3333-30-0	TEQ WHO2005 ND=0		<del>0.247</del> 0.246	0.322	pg/g		
3333-30-1	TEQ WHO2005 ND=0.5		0.623	0.674	pg/g		

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		145	187	pg/g	77.4	(40%-135%)
13C-1,2,3,7,8-PeCDD		138	187	pg/g	73.9	(40%-135%)
13C-1,2,3,6,7,8-HxCDD		148	187	pg/g	78.8	(40%-135%)
13C-1,2,3,4,6,7,8-HpCDD		156	187	pg/g	83.3	(40%-135%)
13C-OCDD		304	374	pg/g	81.2	(40%-135%)
13C-2,3,7,8-TCDF		136	187	pg/g	72.8	(40%-135%)
13C-1,2,3,7,8-PeCDF		126	187	pg/g	67.2	(40%-135%)
13C-1,2,3,6,7,8-HxCDF		139	187	pg/g	74.5	(40%-135%)
13C-1,2,3,4,6,7,8-HpCDF		148	187	pg/g	79.0	(40%-135%)

**Comments:**

- B The target analyte was detected in the associated blank.  
J Value is estimated  
K Estimated Maximum Possible Concentration  
U Analyte was analyzed for, but not detected above the specified detection limit.

1-3119

**Hi-Res Dioxins/Furans  
Certificate of Analysis  
Sample Summary**

SDG Number: 14391  
Lab Sample ID: 14391002  
Client Sample: 8290 Soil  
Client ID: 18111132  
Batch ID: 39632  
Run Date: 01/16/2019 04:15  
Data File: A15JAN19B\_2-10  
Prep Batch: 39630  
Prep Date: 06-JAN-19

Client: GELA001  
Date Collected: 12/12/2018 14:30  
Date Received: 12/14/2018 11:10  
Method: SW846 8290A  
Analyst: MJC  
Prep Method: SW846 3540C  
Prep Aliquot: 11.2 g

Project: GELA00518  
Matrix: SOIL  
%Moisture: 10.8  
Prep Basis: Dry Weight  
Instrument: HRP750  
Dilution: 1

CAS No.	Parmname	Qual	Result	EMPC	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD	J H	0.663		pg/g	0.476	1.00
40321-76-4	1,2,3,7,8-PeCDD	J Q	1.68		pg/g	0.372	5.01
39227-28-6	1,2,3,4,7,8-HxCDD	J Q	2.51		pg/g	0.298	5.01
57653-85-7	1,2,3,6,7,8-HxCDD		5.08		pg/g	0.268	5.01
19408-74-3	1,2,3,7,8,9-HxCDD	J Q	3.87		pg/g	0.280	5.01
35822-46-9	1,2,3,4,6,7,8-HpCDD		132		pg/g	0.943	5.01
3268-87-9	1,2,3,4,6,7,8,9-OCDD		1210		pg/g	1.16	10.0
<del>54207-31-9</del>	<del>2,3,7,8-TCDF</del>		<del>2.48</del>		<del>pg/g</del>	<del>0.885</del>	<del>1.00</del>
57117-41-6	1,2,3,7,8-PeCDF	J Q	4.35		pg/g	0.290	5.01
57117-31-4	2,3,4,7,8-PeCDF		5.58		pg/g	0.262	5.01
70648-26-9	1,2,3,4,7,8-HxCDF		17.1		pg/g	0.306	5.01
57117-44-9	1,2,3,6,7,8-HxCDF		15.7		pg/g	0.286	5.01
60851-34-5	2,3,4,6,7,8-HxCDF		12.2		pg/g	0.302	5.01
72918-21-9	1,2,3,7,8,9-HxCDF	J Q	3.93		pg/g	0.378	5.01
67562-39-4	1,2,3,4,6,7,8-HpCDF		150		pg/g	0.515	5.01
55673-89-7	1,2,3,4,7,8,9-HpCDF		18.6		pg/g	0.661	5.01
39001-02-0	1,2,3,4,6,7,8,9-OCDF		268		pg/g	0.605	10.0
41903-57-5	Total Tetrachlorodibenzo-p-dioxin	J	4.27	6.78	pg/g	0.476	1.00
36088-22-9	Total Pentachlorodibenzo-p-dioxin	J	13.2	15.8	pg/g	0.372	5.01
34465-46-8	Total Hexachlorodibenzo-p-dioxin	J	45.5		pg/g	0.268	5.01
37871-00-4	Total Heptachlorodibenzo-p-dioxin		251		pg/g	0.943	5.01
30402-14-3	Total Tetrachlorodibenzofuran		41.3	49.7	pg/g	0.885	1.00
30402-15-4	Total Pentachlorodibenzofuran	J	72.3	73.5	pg/g	0.0745	5.01
55684-94-1	Total Hexachlorodibenzofuran	J	137		pg/g	0.286	5.01
38998-75-3	Total Heptachlorodibenzofuran		234		pg/g	0.515	5.01
3333-30-0	TEQ WHO2005 ND=0		13.2	13.8	pg/g		
3333-30-1	TEQ WHO2005 ND=0.5		13.4	13.8	pg/g		

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		154	200	pg/g	77.1	(40%-135%)
13C-1,2,3,7,8-PeCDD		138	200	pg/g	68.7	(40%-135%)
13C-1,2,3,6,7,8-HxCDD		154	200	pg/g	77.0	(40%-135%)
13C-1,2,3,4,6,7,8-HpCDD		166	200	pg/g	82.7	(40%-135%)
13C-OCDD		329	400	pg/g	82.1	(40%-135%)
13C-2,3,7,8-TCDF		145	200	pg/g	72.4	(40%-135%)
13C-1,2,3,7,8-PeCDF		124	200	pg/g	62.0	(40%-135%)
13C-1,2,3,6,7,8-HxCDF		145	200	pg/g	72.4	(40%-135%)
13C-1,2,3,4,6,7,8-HpCDF		157	200	pg/g	78.5	(40%-135%)

**Comments:**

J Value is estimated

K Estimated Maximum Possible Concentration

U Analyte was analyzed for, but not detected above the specified detection limit.

MW 1-3H9

Hi-Res Dioxins/Furans  
Certificate of Analysis  
Sample Summary

SDG Number:	14391	Client:	GELA001	Project:	GELA00518
Lab Sample ID:	14391002	Date Collected:	12/12/2018 14:30	Matrix:	SOIL
Client Sample:	8290 Soil	Date Received:	12/14/2018 11:10	%Moisture:	10.8
Client ID:	18111132			Prep Basis:	Dry Weight
Batch ID:	39632	Method:	SW846 8290A	Instrument:	HRP750
Run Date:	01/18/2019 14:05	Analyst:	MJC	Dilution:	1
Data File:	A18JAN19A-4				
Prep Batch:	39630	Prep Method:	SW846 3540C		
Prep Date:	06-JAN-19	Prep Aliquot:	11.2 g		

CAS No.	Parmname	Qual	Result	EMPC	Units	EDL	PQL
51207-31-9	2,3,7,8-TCDF		2.13		pg/g	0.675	1.00

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
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## Comments:

- J Value is estimated
- K Estimated Maximum Possible Concentration
- U Analyte was analyzed for, but not detected above the specified detection limit.

MW 1-31-19





## ecology and environment, inc.

Global Environmental Specialists

720 Third Avenue, Suite 1700  
Seattle, Washington 98104  
Tel: (206) 624-9537, Fax: (206) 621-9832

### MEMORANDUM

DATE: December 3, 2018

TO: Steve Hall, START-IV Project Manager, E & E, Seattle, WA

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, WA *MW*

SUBJ: **Data Quality Assurance Review, May Creek Removal Site,  
Renton, Washington**

REF: TO: TO-68HE0718F0470      PAN: 1004530.0470.001.01

The data quality assurance review of 30 solid samples collected from the May Creek Removal site in Renton, Washington, has been completed. Polarized light microscopy (PLM) (EPA Method 600/R-93/116) analyses were performed by A & B Labs, Inc., Houston, Texas. All sample analyses were evaluated following EPA's Stage 2A Data Validation Manual Process (S2AVM).

The samples were numbered:

18111001	18111002	18111003	18111004	18111005
18111006	18111007	18111008	18111009	18111010
18111011	18111012	18111013	18111014	18111015
18111016	18111017	18111018	18111019	18111020
18111021	18111022	18111023	18111024	18111025
18111026	18111027	18111028	18111029	18111030

#### Data Qualifications:

The samples were collected on November 19 and 20, 2018, and were analyzed by November 23, 2018. No discrepancies were noted in the laboratory case narrative except the note "Sample(s) received with signed sample custody seal. No." The laboratory was contacted and the Sample Receiving Supervisor indicated that "I didn't make a note on 18111264, because the sample receipt checklist was marked 'yes' for cooler seal. These samples were received in a cooler with no ice and a signed custody seal." No qualifications were made based on this information.

A total of 33 results were validated in this data memorandum. No sample results were qualified as estimated quantities (J). No sample results were rejected (R).

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the EPA Region 10 Emergency Management Program SOG 144E Analytical Data Validation, and the analytical method(s). Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

### Data Qualifiers and Definitions

U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.





## TEST REPORT FOR BULK ASBESTOS BY PLM

A&amp;B Job ID 18111264

Date : 11/28/2018

Client Name: Ecology and Environment, Inc.  
Project 10RB  
Name:

Date Received: 11/23/2018  
Date Analyzed: 11/23/2018  
Analyst Initial: HA

<i>A&amp;B Sample ID</i> <i>Client Sample ID</i>	<i>Sample</i> <i>Description</i>	<i>Asbestos</i> <i>Detected</i>	<i>Asbestos</i> <i>Fibers</i>	<i>Other</i> <i>Fibers</i>	<i>Non - Fibrous</i> <i>Material</i>
18111264.07 18111264.07.A 18111007 Layer % of Total :100%	Roof Shingle Fibrous/Granular/Tar Homogeneous Black/Brown/Gray	No		GlassFibers 11-50%	Binder Carbonate Silica Tar
18111264.08 18111264.08.A 18111008 Layer % of Total :100%	Roof Shingle Fibrous/Granular/Tar Homogeneous Black/Gray	No		GlassFibers 11-50%	Binder Carbonate Silica Tar
18111264.09 18111264.09.A 18111009 Layer % of Total :100%	Granular & Fibrous Material Fibrous/Granular/Tar/Vinyl Homogeneous Black/Brown	No		Synthetic 11-50%	Binder Minrl Frags Tar Vinyl
18111264.10 18111264.10.A 18111010 Layer % of Total :100%	Granular & Fibrous Material Fibrous/Granular/Tar/Vinyl Homogeneous Black/Brown	No		Synthetic 11-50%	Binder Minrl Frags Tar Vinyl
18111264.11 18111264.11.A 18111011 Layer % of Total :100%	Roof Shingle Fibrous/Granular/Tar/Vinyl Homogeneous Black/Brown	No		Synthetic 11-50% Mineralwool 1-10%	Binder Silica Tar Vinyl
18111264.12 18111264.12.A 18111012 Layer % of Total :100%	Roof Shingle Fibrous/Granular/Tar Homogeneous Black/Brown	No		GlassFibers 11-50%	Binder Carbonate Silica Tar
18111264.13 18111264.13.A 18111013 Layer % of Total :100%	Roof Material Fibrous/Granular/Tar/Vinyl Homogeneous Black/Brown	No		Synthetic 11-50% Mineralwool 1-10%	Binder Minrl Frags Tar Vinyl

MW/2318

# TEST REPORT FOR BULK ASBESTOS BY PLM



A&B Job ID 18111264

Date : 11/28/2018

Client Name: Ecology and Environment, Inc.

Project 10RB

Name:

Date Received: 11/23/2018

Date Analyzed: 11/23/2018

Analyst Initial: HA

<i>A&amp;B Sample ID</i> <i>Client Sample ID</i>	<i>Sample Description</i>	<i>Asbestos Detected</i>	<i>Asbestos Fibers</i>	<i>Other Fibers</i>	<i>Non - Fibrous Material</i>
18111264.01 18111264.01.A 18111001 Layer % of Total :100%	Granular & Fibrous Material Fibrous/Granular Homogeneous Black/Brown	No		GlassFibers 1-10%	Binder Carbonate Minrl Frags Paint
18111264.02 18111264.02.A 18111002 Layer % of Total :100%	Gasket Foam/Fibrous/Vinyl Homogeneous Black/Tan	No		Synthetic 1-10%	Foam Glue Silica Vinyl
18111264.03 18111264.03.A 18111003 Layer % of Total :100%	Roof Material Fibrous/Granular/Tar Homogeneous Black	No		GlassFibers 11-50%	Binder Minrl Frags Silica Tar
18111264.04 18111264.04.A 18111004 Layer % of Total :100%	Granular & Fibrous Material Fibrous/Granular/Tar/Vinyl Homogeneous Black	No		Cellulose 11-50%	Binder Minrl Frags Tar Vinyl
18111264.05 18111264.05.A 18111005 Layer % of Total :20%	Wall Texture / J. Compound Fibrous/Granular Homogeneous Brown/Red	Yes	Chrysotile 4-9%	Cellulose 11-50%	Binder Carbonate Minrl Frags Paint
18111264.05 18111264.05.B 18111005 Layer % of Total :80%	Dry Wall Fibrous/Granular Homogeneous Brown/Tan	No		Cellulose 11-50%	Binder Glue Gypsum Minrl Frags
18111264.06 18111264.06.A 18111006 Layer % of Total :100%	Granular & Fibrous Material Fibrous/Granular Homogeneous Brown/Tan	No		Cellulose 11-50%	Binder Glue Minrl Frags Paint

*Handwritten signature and date: 12-3-18*



## TEST REPORT FOR BULK ASBESTOS BY PLM

A&amp;B Job ID 18111264

Date : 11/28/2018

Client Name: Ecology and Environment, Inc.  
Project 10RB  
Name:

Date Received: 11/23/2018  
Date Analyzed: 11/23/2018  
Analyst Initial: HA

<i>A&amp;B Sample ID</i> <i>Client Sample ID</i>	<i>Sample</i> <i>Description</i>	<i>Asbestos</i> <i>Detected</i>	<i>Asbestos</i> <i>Fibers</i>	<i>Other</i> <i>Fibers</i>	<i>Non - Fibrous</i> <i>Material</i>
18111264.14 18111264.14.A 18111014 Layer % of Total :100%	Fiberglass Panel Fibrous Homogeneous Black	No		Cellulose 1-10% Mineralwool 51-90%	Binder Glue Minrl Frags
18111264.15 18111264.15.A 18111015 Layer % of Total :100%	Roof Material Fibrous/Granular/Tar/Vinyl Homogeneous Black	No		Synthetic 11-50%	Binder Minrl Frags Tar Vinyl
18111264.16 18111264.16.A 18111016 Layer % of Total :10%	Mastic Granular/Tar Homogeneous Black	Yes	Chrysotile 10-20%		Binder Minrl Frags Tar
18111264.16 18111264.16.B 18111016 Layer % of Total :90%	Floor Tile Granular/Vinyl Homogeneous Gray	Yes	Chrysotile 4-9%		Binder Carbonate Minrl Frags Vinyl
18111264.17 18111264.17.A 18111017 Layer % of Total :100%	Fibrous Material Fibrous Homogeneous Black/Brown	No		Cellulose 51-90%	Binder Glue Minrl Frags Paint
18111264.18 18111264.18.A 18111018 Layer % of Total :100%	Granular & Fibrous Material Fibrous/Granular/Vinyl Homogeneous Black/Gray	No		Cellulose 11-50% GlassFibers 1-10%	Binder Glue Minrl Frags Vinyl
18111264.19 18111264.19.A 18111019 Layer % of Total :100%	Granular & Fibrous Material Fibrous/Granular Homogeneous Brown/Red/Tan	No		Cellulose 11-50%	Binder Glue Minrl Frags

# TEST REPORT FOR BULK ASBESTOS BY PLM



A&B Job ID 18111264

Date : 11/28/2018

Client Name: Ecology and Environment, Inc.  
Project 10RB  
Name:

Date Received: 11/23/2018  
Date Analyzed: 11/23/2018  
Analyst Initial: HA

<i>A&amp;B Sample ID</i> <i>Client Sample ID</i>	<i>Sample Description</i>	<i>Asbestos Detected</i>	<i>Asbestos Fibers</i>	<i>Other Fibers</i>	<i>Non - Fibrous Material</i>
18111264.20 18111264.20.A 18111020 Layer % of Total :100%	Roof Material Fibrous/Granular/Tar/Vinyl Homogeneous Black	No		Cellulose 11-50% Synthetic 11-50%	Binder Silica Tar Vinyl
18111264.21 18111264.21.A 18111021 Layer % of Total :100%	Roof Material Fibrous/Granular/Tar/Vinyl Homogeneous Black	No		Synthetic 11-50%	Binder Silica Tar Vinyl
18111264.22 18111264.22.A 18111022 Layer % of Total :100%	Roof Material Fibrous/Granular/Tar/Vinyl Homogeneous Black	No		Synthetic 11-50%	Binder Silica Tar Vinyl
18111264.23 18111264.23.A 18111023 Layer % of Total :100%	Granular & Fibrous Material Fibrous/Granular Homogeneous Black/Brown/Tan	No		Cellulose 11-50%	Binder Glue Minrl Frags Paint
18111264.24 18111264.24.A 18111024 Layer % of Total :100%	Roof Shingle Fibrous/Granular/Tar Homogeneous Black/Brown	No		GlassFibers 11-50%	Binder Silica Tar
18111264.25 18111264.25.A 18111025 Layer % of Total :100%	Plaster Granular Homogeneous Gray/Tan/Yellow	No		Cellulose 1-10%	Binder Carbonate Paint Silica
18111264.26 18111264.26.A 18111026 Layer % of Total :20%	Texture / J.Compound Fibrous/Granular Homogeneous Brown/Tan	No		Cellulose 11-50%	Binder Carbonate Minrl Frags Paint

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## TEST REPORT FOR BULK ASBESTOS BY PLM

A&amp;B Job ID 18111264

Date : 11/28/2018

Client Name: Ecology and Environment, Inc.  
Project 10RB  
Name:

Date Received: 11/23/2018  
Date Analyzed: 11/23/2018  
Analyst Initial: HA

<i>A&amp;B Sample ID</i> <i>Client Sample ID</i>	<i>Sample</i> <i>Description</i>	<i>Asbestos</i> <i>Detected</i>	<i>Asbestos</i> <i>Fibers</i>	<i>Other</i> <i>Fibers</i>	<i>Non - Fibrous</i> <i>Material</i>
18111264.26 18111264.26.B 18111026 Layer % of Total :80%	Dry Wall Fibrous/Granular Homogeneous Brown/Tan	No		Cellulose 11-50% GlassFibers 1-10%	Binder Glue Gypsum Minrl Frags
18111264.27 18111264.27.A 18111027 Layer % of Total :100%	Roof Shingle Fibrous/Granular/Tar Homogeneous Green/White	No		GlassFibers 11-50%	Binder Silica Tar
18111264.28 18111264.28.A 18111028 Layer % of Total :100%	Roof Shingle Fibrous/Granular/Tar Homogeneous Black/Brown/Red	No		GlassFibers 11-50%	Binder Silica Tar
18111264.29 18111264.29.A 18111029 Layer % of Total :100%	Roof Material Fibrous/Granular/Tar Homogeneous Black	No		GlassFibers 11-50%	Binder Silica Tar
18111264.30 18111264.30.A 18111030 Layer % of Total :100%	Roof Material Fibrous/Granular/Tar Homogeneous Black	No		Cellulose 11-50%	Binder Minrl Frags Tar

mw 12-318



# **Appendix E**

## **Container Inventory**

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# May Creek Inventory Report

## Class 2 - Gases

**QTY: 276**

### 2 - Compressed Gases

ID	Container Size	QTY	Existing/Original Label	% Full	Sealed/ Open	Integrity	Leaking?	Estimated Amnt
B20005	60 Pounds	1	Not legible label	0%	Open	Poor	No	0 Pounds
B20006	10.5 Gal	1	Engraved marking	10%	Open	Poor	No	1.05 Gal
B20007	25 Gal	1		0%	Open	Poor	No	0 Gal
B20008	25 Gal	1		0%	Open	Poor	No	0 Gal
B20009	25 Gal	1			Open	Poor	No	0 Gal
B20010	25 Gal	1		0%	Open	Poor	No	0 Gal
B20011	25 Gal	1		0%	Open	Poor	No	0 Gal
B20012	25 Gal	1		0%	Open	Poor	No	0 Gal
B20013	25 Gal	32		10%	Open	Poor	No	2.5 Gal
B20014	25 Gal	1		0%	Open	Poor	No	0 Gal
B20015	25 Gal	1		0%	Open	Poor	No	0 Gal
B20016	25 Gal	1		0%	Open	Poor	No	0 Gal
B20017	25 Gal	1		0%	Open	Poor	No	0 Gal
B20018	35 Gal	1		0%	Open	Poor	No	0 Gal
B20019	25 Gal	1		0%	Open	Poor	No	0 Gal
B20020	25 Gal	1		0%	Open	Poor	No	0 Gal



# May Creek Inventory Report

ID	Container Size	QTY	Existing/Original Label	% Full	Sealed/ Open	Integrity	Leaking?	Estimated Amnt
B20021	20 Gal	1		0%	Open	Poor	No	0 Gal
B20025	35 Gal	1	No marking	0%	Open	Poor	No	0 Gal
B20040	11 oz.	2	Starter fluid	0%	Open	Poor	No	0 oz.
B20056	25 Gal	1		0%	Open	Poor	Yes	0 Gal
B20057	25 Gal	1		0%	Open	Poor	Yes	0 Gal

## 53 containers in Hazard Subclass 2 - Compressed Gases

2.1 - Flammable Gas								
ID	Container Size	QTY	Existing/Original Label	% Full	Sealed/ Open	Integrity	Leaking?	Estimated Amnt
B20058	25 Gal	1		0%	Open	Poor	Yes	0 Gal
B20061	25 Gal	1	No marking	0%	Open	Poor	No	0 Gal
B20062	25 Gal	1	No marking	0%	Open	Poor	No	0 Gal
B20063	25 Gal	1	Freon	0%	Open	Poor	No	0 Gal
B20064	25 Gal	1		0%	Open	Poor	No	0 Gal
B30076	13.61 kg	1	Freon 22	0%	Open	Poor	No	0 kg
B30077	30 Pounds	1	Freon 22	0%	Open	Poor	No	0 Pounds
B30224	1 Aerosol	40		100%	Open	Poor	No	1 Aerosol
B30227	16 oz.	2	Coleman	0%	Open	Poor	No	0 oz.
B30301	20 Pounds	2		0%	Open	Poor	No	0 Pounds
B30302	100 Pounds	1		0%	Sealed	Poor	No	0 Pounds



# May Creek Inventory Report

ID	Container Size	QTY	Existing/Original Label	% Full	Sealed/ Open	Integrity	Leaking?	Estimated Amnt
B30303	30 Pounds	1	DOT 4BW240	75%	Sealed	Poor	No	22.5 Pounds
B30307	100 Pounds	1		0%	Open	Poor	No	0 Pounds
B30308	100 Pounds	1	Acetylene	0%	Open	Poor	No	0 Pounds
B30311	1 Pounds	1	Oxygen	50%	Open	Poor	No	0.5 Pounds
B30315	20 Gal	1		75%	Open	Poor	No	15 Gal
B30316	16 oz.	5	Disinfectant deodorant, tile cleaner, stain remover	50%	Open	Poor	No	8 oz.
B40007	12 oz.	1		50%	Open	Poor	No	6 oz.
B50005	25 Gal	1		0%	Open	Poor	No	0 Gal
L10002	1 Aerosol	1		0%	Open	Poor	No	0 Aerosol
L10032	1 Aerosol	1	Spray on enamel	0%	Open	Poor	No	0 Aerosol
L10039	25 Gal	1	Liquid propane	25%	Open	Poor	Yes	6.25 Gal
L10129	25 Gal	1		0%	Open	Fair	No	0 Gal
L10130	40 Gal	1		0%	Open	Poor	No	0 Gal
L10134	1 Aerosol	1	Penetrating oil	0%	Open	Poor	No	0 Aerosol
L10141	30 oz.	2		50%	Open	Poor	No	15 oz.
L20016	10 oz.	1	Oven cleaner	90%	Open	Poor	No	9 oz.
L20027	5 Gal	1		50%	Open	Poor	No	2.5 Gal
L20028	10 Gal	1		90%	Open	Poor	No	9 Gal
L20035	10 Gal	1		25%	Open	Poor	No	2.5 Gal
L20041	3 Pounds	1		0%	Open	Poor	No	0 Pounds



# May Creek Inventory Report

ID	Container Size	QTY	Existing/Original Label	% Full	Sealed/ Open	Integrity	Leaking?	Estimated Amnt
L20042	20 oz.	3		50%	Open	Poor	No	10 oz.
L30143	5 Gal	1		100%	Open	Poor	No	5 Gal
L30362	1 Aerosol	1	Break parts cleaner	0%	Open	Poor	No	0 Aerosol
L30363	1 Aerosol	1	Flat tire fixer	0%	Open	Poor	No	0 Aerosol
L30364	1 Aerosol	1	Bed bug spray	0%	Open	Poor	No	0 Aerosol
L30375	25 Gal	1		0%	Open	Poor	No	0 Gal
L30376	25 Gal	1		0%	Open	Poor	No	0 Gal
L30379	20 Gal	1	Helium	0%	Open	Poor	Yes	0 Gal
L30380	20 Gal	1		0%	Open	Poor	Yes	0 Gal
L30381	40 Gal	1	DOT 3 1075	0%	Open	Poor	Yes	0 Gal
L30382	20 Gal	1		0%	Open	Poor	Yes	0 Gal
L30383	30 Gal	1		0%	Open	Poor	Yes	0 Gal
L30389	2.5 Gal	1		0%	Open	Poor	No	0 Gal
L30390	3 Gal	1	Carbon dioxide. DOT 2	0%	Open	Poor	No	0 Gal
L50003	100 Pounds	1		100%	Open	Poor	No	100 Pounds
L50005	20 Gal	1		0%	Open	Poor	Yes	0 Gal
L50008	20 Pounds	9		0%	Open	Poor	Yes	0 Pounds
L50011	20 Pounds	66		0%	Open	Poor	Yes	0 Pounds
L60001	30 Gal	1		0%	Open	Poor	No	0 Gal



# May Creek Inventory Report

ID	Container Size	QTY	Existing/Original Label	% Full	Sealed/ Open	Integrity	Leaking?	Estimated Amnt
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**171 containers in Hazard Subclass 2.1 - Flammable Gas**

## 2.2 - Non-Flam/Non-Pois Comp. Gas

ID	Container Size	QTY	Existing/Original Label	% Full	Sealed/ Open	Integrity	Leaking?	Estimated Amnt
L60020	50 Gal	22		0%	Open	Poor	Yes	0 Gal
L60034	1 Aerosol	2	Sealant	0%	Open	Poor	No	0 Aerosol
L60035	20 Pounds	1		0%	Open	Poor	No	0 Pounds
L60036	20 Pounds	1		0%	Open	Poor	No	0 Pounds

**26 containers in Hazard Subclass 2.2 - Non-Flam/Non-Pois Comp. Gas**

## 2.3 – Gas Poisonous by Inhalation

ID	Container Size	QTY	Existing/Original Label	% Full	Sealed/ Open	Integrity	Leaking?	Estimated Amnt
L60040	100 Pounds	1		0%	Open	Poor	No	0 Pounds
L60041	20 Gal	1		0%	Open	Poor	No	0 Gal
W10026	10 oz.	1	No marking	10%	Open	Poor	No	1 oz.
W20021	10 oz.	21	Various spray can containing paint thinner, Engine	0%	Open	Poor	No	0 oz.
W20026	10 Gal	1	No marking	0%	Open	Poor	No	0 Gal
W20027	25 Gal	1	No marking	0%	Open	Poor	No	0 Gal

**26 containers in Hazard Subclass 2.3 – Gas Poisonous by Inhalation**



# May Creek Inventory Report

ID	Container Size	QTY	Existing/Original Label	% Full	Sealed/ Open	Integrity	Leaking?	Estimated Amnt
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## Class 3 – Flammable and Combustible Liquids

**QTY: 290**

### 3 – Flammable and Combustible Liquids

ID	Container Size	QTY	Existing/Original Label	% Full	Sealed/ Open	Integrity	Leaking?	Estimated Amnt
B10004	1 Gal	1		10%	Open	Poor	No	0.1 Gal
B20001	55 Gal	1	Product component B resin/poly	100%	Open	Poor	No	55 Gal
B20002	55 Gal	1	Product component B resin/poly	100%	Open	Poor	No	55 Gal
B20004	55 Gal	4	No marking	1%	Open	Poor	No	0.55 Gal
B20023	1 Gal	1	No marking	50%	Open	Poor	No	0.5 Gal
B20034	15 Gal	1	Cracked containers	50%	Open	Poor	Yes	7.5 Gal
B20036	5 oz.	1	Oil	0%	Open	Poor	No	0 oz.
B20042	5 Gal	1	Motor oil supply. Unknown liquid	0%	Open	Poor	No	0 Gal
B20044	5 Gal	2	No marking	0%	Open	Poor	No	0 Gal
B20046	1 Gal	4	Paint thinner	0%	Open	Poor	No	0 Gal
B20050	5 Gal	6	No marking	0%	Open	Poor	Yes	0 Gal
B20051	5 Gal	3	No marking	0%	Open	Poor	No	0 Gal
B20052	5 Gal	1	No marking	10%	Open	Poor	No	0.5 Gal
B20053	4 Gal	6	Shoe goo	0%	Open	Poor	No	0 Gal
B30001	55 oz.	1	No markings	90%	Open	Poor	Yes	49.5 oz.
B30002	55 Gal	1	No marking	0%	Open	Poor	No	0 Gal



# May Creek Inventory Report

ID	Container Size	QTY	Existing/Original Label	% Full	Sealed/ Open	Integrity	Leaking?	Estimated Amnt
B30003	55 Gal	1	No marking	0%	Open	Poor	No	0 Gal
B30004	55 Gal	1	No marking	0%	Open	Poor	No	0 Gal
B30005	55 Gal	1	No marking	0%	Open	Poor	No	0 Gal
B30006	55 Gal	1	No marking	0%	Open	Poor	No	0 Gal
B30007	55 Gal	1	No marking	0%	Open	Poor	No	0 Gal
B30008	5 Gal	1	Kelly paint	0%	Open	Poor	No	0 Gal
B30009	5 Gal	1	Wet patch cement	0%	Open	Poor	No	0 Gal
B30011	5 Gal	1	Transmission and hydraulic oil	25%	Open	Poor	Yes	1.25 Gal
B30012	5 Gal	1	Hydraulic oil	100%	Open	Poor	No	5 Gal
B30013	1 Gal	1	Tar flammable	100%	Open	Poor	No	1 Gal
B30014	1 Gal	1	Combustible	100%	Open	Poor	No	1 Gal
B30015	5 Gal	1		100%	Open	Poor	No	5 Gal
B30016	3 Gal	1	Napa	0%	Open	Poor	No	0 Gal
B30019	2.5 Gal	1		0%	Open	Poor	Yes	0 Gal
B30024	1 Gal	1	Waterless hand cleaner	0%	Open	Poor	Yes	0 Gal
B30039	8 Gal	1	Wood stain	50%	Open	Poor	No	4 Gal
B30040	1 Gal	1		50%	Open	Poor	No	0.5 Gal
B30041	1 Gal	1		50%	Open	Poor	No	0.5 Gal
B30042	1 oz.	1	Wood stain	50%	Open	Poor	No	0.5 oz.
B30043	1 Gal	1	Wood stain	50%	Open	Poor	No	0.5 Gal



# May Creek Inventory Report

ID	Container Size	QTY	Existing/Original Label	% Full	Sealed/ Open	Integrity	Leaking?	Estimated Amnt
B30044	250 Quart	1		50%	Open	Poor	No	125 Quart
B30045	5 Quart	1	Motor oil	100%	Open	Poor	No	5 Quart
B30047	12 Quart	1	Paraffin oil	50%	Open	Poor	No	6 Quart
B30048	12 Gal	1	Motor oil	50%	Open	No Lid	No	6 Gal
B30049	1 Gal	1		25%	Open	Poor	No	0.25 Gal
B30050	6 oz.	1		90%	Open	Poor	No	5.4 oz.
B30051	1 oz.	1		25%	Open	Poor	No	0.25 oz.
B30059	1 L	1	Coleman fuel	25%	Open	Fair	No	0.25 L
B30061	1 oz.	1		25%	Open	Poor	No	0.25 oz.
B30064	1 L	1		25%	Open	Poor	No	0.25 L
B30075	1 Gal	1	Denatured alcohol	0%	Open	Poor	No	0 Gal
B30084	5 Quart	1		75%	Open	Poor	No	3.75 Quart
B30085	1 Quart	1	Wood finish	25%	Open	Poor	No	0.25 Quart
B30093	2 L	1	Co-mate chimney cleaner	100%	Open	Poor	No	2 L
B30098	16 Gal	1	Restore a finish Poison on label	25%	Open	Poor	No	4 Gal
B30099	18 Quart	1		100%	Open	Poor	No	18 Quart
B30100	16 Pounds	1	Finish restorer	10%	Open	Poor	No	1.6 Pounds
B30102	1 oz.	1	Silicone sealer	25%	Open	Poor	No	0.25 oz.
B30107	20 oz.	1	Diesel fuel treatment	100%	Open	Poor	Yes	20 oz.
B30108	16 oz.	1	Car wax	100%	Open	Poor	No	16 oz.





# May Creek Inventory Report

ID	Container Size	QTY	Existing/Original Label	% Full	Sealed/ Open	Integrity	Leaking?	Estimated Amnt
B30109	8 L	1	Rain-ex	50%	Open	Poor	No	4 L
B30111	16 oz.	1		50%	Open	Poor	Yes	8 oz.
B30112	16 oz.	1		1%	Open	Poor	No	0.16 oz.
B30120	4 oz.	1	Disk break quieter	50%	Open	Poor	No	2 oz.
B30121	1 oz.	1	Shellac thinner	50%	Open	Poor	No	0.5 oz.
B30125	4 oz.	1	Powder slide	50%	Open	Poor	No	2 oz.
B30126	1 oz.	1	Coleman fuel	75%	Open	Poor	No	0.75 oz.
B30128	4 Quart	1	Graphited lock fluid	25%	Open	Poor	No	1 Quart
B30130	18 Gal	1	Car wax	90%	Open	Poor	No	16.2 Gal
B30131	18 oz.	1		25%	Open	Poor	No	4.5 oz.
B30132	2 Gal	1		25%	Open	Poor	No	0.5 Gal
B30136	1 oz.	2	Color enhancer	25%	Open	Poor	No	0.25 oz.
B30137	4 oz.	1	Rain-ex	25%	Open	Poor	No	1 oz.
B30142	16 oz.	1	Solvent	25%	Open	Poor	No	4 oz.
B30143	14 oz.	1	Leather upholstery cleaner	10%	Open	Poor	No	1.4 oz.
B30144	9 Quart	1	Surface protector	10%	Open	Poor	Yes	0.9 Quart
B30145	14 oz.	1	Leather upholstery cleaner	10%	Open	Poor	No	1.4 oz.
B30146	5 oz.	1	Water sealer	25%	Open	Poor	No	1.25 oz.
B30147	5 oz.	1	Gasoline	10%	Open	Poor	No	0.5 oz.
B30148	14.5 oz.	1	Mobile oil grease tubes	75%	Open	Poor	No	10.875 oz.



# May Creek Inventory Report

ID	Container Size	QTY	Existing/Original Label	% Full	Sealed/ Open	Integrity	Leaking?	Estimated Amnt
B30154	5 oz.	1	Solvent based sealant	10%	Open	Poor	No	0.5 oz.
B30156	1 Gal	1	Cabinet cleaner	10%	Open	Poor	No	0.1 Gal
B30158	1 Gal	1		25%	Open	Poor	Yes	0.25 Gal
B30160	1 Gal	1	Floor polish Contains glycol ether	50%	Open	Poor	No	0.5 Gal
B30161	1 Gal	1		75%	Open	Poor	Yes	0.75 Gal
B30171	1 Gal	1	550 VOC	100%	Open	Poor	No	1 Gal
B30173	1 oz.	13	Mixed automotive finish	100%	Open	Poor	No	1 oz.
B30181	5 Gal	1		0%	Open	Poor	Yes	0 Gal
B30183	1 L	1		100%	Open	Poor	No	1 L
B30184	1 Gal	1	Rain-x	100%	Open	Poor	No	1 Gal
B30185	1 Gal	1	Oil stabilizer	100%	Open	Poor	No	1 Gal
B30186	16 L	1	Power steering fluid	100%	Open	Poor	No	16 L
B30187	16 Gal	1	Wall stripper	100%	Open	Poor	No	16 Gal
B30189	1 Gal	1	Spar urethane	10%	Open	Poor	No	0.1 Gal
B30197	1.5 Gal	1	Allsop cleaning solution	100%	Open	Poor	No	1.5 Gal
B30200	5 L	1		75%	Open	Poor	No	3.75 L
B30204	5 Quart	1		100%	Open	Poor	Yes	5 Quart
B30205	5 Quart	1	Flammable liquid label	100%	Open	Poor	No	5 Quart
B30206	5 oz.	1		100%	Open	Poor	No	5 oz.
B30208	1 oz.	1	Stain paint	100%	Open	Poor	Yes	1 oz.



# May Creek Inventory Report

ID	Container Size	QTY	Existing/Original Label	% Full	Sealed/ Open	Integrity	Leaking?	Estimated Amnt
B30209	1 Quart	1	Automotive paint Contains lead	100%	Open	Poor	No	1 Quart
B30212	5 oz.	1		100%	Open	Poor	No	5 oz.
B30213	5 Gal	1	Aquaphalt	100%	Open	Poor	No	5 Gal
B30214	5 Gal	1		100%	Open	Poor	No	5 Gal
B30215	5 Gal	1	Flammable liquid label	100%	Open	Poor	No	5 Gal
B30216	8 Gal	1	Empty oil and paint thinner cans	1%	Open	Poor	No	0.08 Gal
B30222	1.5 Gal	1	Car wax	100%	Open	Poor	No	1.5 Gal
B30226	250 Quart	1		25%	Open	Poor	No	62.5 Quart
B30305	55 Gal	1		75%	Open	Poor	Yes	41.25 Gal
B30310	3 Gal	1		50%	Open	Poor	No	1.5 Gal
B30314	14 Gal	1	Grease	25%	Open	Poor	No	3.5 Gal
B30317	1 Gal	1	Sealer pigment	90%	Open	Poor	No	0.9 Gal
L10001	946 Gal	1	Brake fluid	10%	Open	Poor	No	94.6 Gal
L10003	1 Gal	1		99%	Open	Poor	No	0.99 Gal
L10008	5 oz.	1		10%	Open	Poor	No	0.5 oz.
L10009	8 L	1		25%	Open	Poor	No	2 L
L10010	1 Gal	1		10%	Open	Poor	No	0.1 Gal
L10014	1 Gal	1	Wood sealant and toner Oil based	0%	Open	Poor	No	0 Gal
L10015	1 oz.	1	Wood sealant and toner Oil based	0%	Open	Poor	No	0 oz.
L10016	1 oz.	1	Wood waterproof sealer finish and stabilizer	0%	Open	Poor	No	0 oz.



# May Creek Inventory Report

ID	Container Size	QTY	Existing/Original Label	% Full	Sealed/ Open	Integrity	Leaking?	Estimated Amnt
L10020	3 Gal	1	Gasoline	10%	Open	Poor	No	0.3 Gal
L10021	2.5 mL	1	Gasoline	10%	Open	Poor	No	0.25 mL
L10023	1 Gal	1	Plastic mender	0%	Open	Poor	No	0 Gal
L10033	1 Gal	1	Rex/merc transmission fluid	50%	Open	Poor	No	0.5 Gal
L10051	5 Gal	1		0%	Open	Poor	Yes	0 Gal
L10052	5 oz.	1		0%	Open	Poor	No	0 oz.
L10056	5 Gal	1	Motor oil on container label	0%	Open	Poor	No	0 Gal
L10058	5 Quart	1		0%	Open	Poor	No	0 Quart
L10062	5 Gal	1		0%	Open	Poor	Yes	0 Gal
L10064	5 Gal	1		0%	Open	Poor	No	0 Gal
L10069	5 Gal	1	Acrylic paint	90%	Open	Poor	Yes	4.5 Gal
L10076	5 Gal	1	Acrylic paint	0%	Open	Poor	No	0 Gal
L10079	5 Gal	1		0%	Open	Poor	No	0 Gal
L10089	5 Quart	1		0%	Open	Poor	No	0 Quart
L10100	5 Gal	1	Latex floor additive	0%	Open	Poor	No	0 Gal
L10102	5 Gal	1	Methanol	0%	Open	Poor	Yes	0 Gal
L10103	5 Gal	1		0%	Open	Poor	No	0 Gal
L10109	5 Gal	1		0%	Open	Poor	No	0 Gal
L10112	5 Gal	1	Motor oil supply	0%	Open	Poor	No	0 Gal
L10116	5 Quart	1	Norline Word flammable on label	0%	Open	Poor	Yes	0 Quart



# May Creek Inventory Report

ID	Container Size	QTY	Existing/Original Label	% Full	Sealed/ Open	Integrity	Leaking?	Estimated Amnt
L10118	5 Gal	1		0%	Open	Poor	No	0 Gal
L10119	5 Gal	1	Lubrication oil	0%	Open	Poor	No	0 Gal
L10135	5000 Gal	1		10%	Open	Poor	No	500 Gal
L10140	14 Gal	1	Grease	100%	Sealed	Poor	No	14 Gal
L20001	1 Gal	1	Motor oil	0%	Open	Poor	No	0 Gal
L20003	1 Gal	1	Transmission fluid	0%	Open	Poor	No	0 Gal
L20005	1 Gal	1	Transmission fluid	0%	Open	Poor	No	0 Gal
L20009	1 Gal	1	Engine oil	0%	Open	Poor	No	0 Gal
L20011	1 Gal	1	Transmission fluid	0%	Open	Poor	No	0 Gal
L20012	2 Gal	1	Gasoline	0%	Open	Poor	Yes	0 Gal
L20015	.5 Gal	1	Transmission fluid	0%	Open	Poor	No	0 Gal
L20017	5 Gal	1	Gasoline	1%	Open	Poor	No	0.05 Gal
L20018	2 Gal	1	Gasoline	0%	Open	Poor	Yes	0 Gal
L20020	2.5 Gal	1	Gasoline	25%	Open	Poor	Yes	0.625 Gal
L20021	5 Gal	1		0%	Open	Poor	Yes	0 Gal
L20030	5 Gal	1	15W-40	25%	Open	Poor	No	1.25 Gal
L20037	500 Gal	1		10%	Open	Poor	No	50 Gal
L20039	5 Gal	1	Gasoline	10%	Open	Poor	No	0.5 Gal
L30013	5 Gal	1		0%	Open	Poor	Yes	0 Gal
L30015	6 Gal	1	Gasoline tank	50%	Open	Poor	Yes	3 Gal



# May Creek Inventory Report

ID	Container Size	QTY	Existing/Original Label	% Full	Sealed/ Open	Integrity	Leaking?	Estimated Amnt
L30016	5 Gal	1		0%	Open	Poor	No	0 Gal
L30017	5 Gal	1		0%	Open	Poor	No	0 Gal
L30018	5 Gal	1		0%	Open	Poor	No	0 Gal
L30019	5 oz.	1	Cold applied liquid water proofing system	0%	Open	Poor	No	0 oz.
L30023	5 Gal	1	Day-chem cure & seal	0%	Open	Poor	No	0 Gal
L30024	5 Gal	1		0%	Open	Poor	No	0 Gal
L30028	5 Gal	1	Miller paint	0%	Open	Poor	Yes	0 Gal
L30039	.75 Gal	1		0%	Open	Poor	No	0 Gal
L30042	1 Gal	1		0%	Open	Poor	No	0 Gal
L30057	1 Gal	1	Paint mentioned on label	0%	Open	Poor	No	0 Gal
L30113	1 Gal	8		0%	Open	Poor	No	0 Gal
L30148	1 Gal	2		0%	Open	Poor	No	0 Gal
L30156	1 Pint	1	Kelly moore	0%	Open	Poor	No	0 Pint
L30320	1 Gal	1	Enamel	0%	Open	Poor	No	0 Gal
L30329	1 Gal	1		0%	Open	Poor	No	0 Gal
L30332	1 Gal	1	Oil mentioned on label	0%	Open	Poor	No	0 Gal
L30333	1 Gal	1		0%	Open	Poor	Yes	0 Gal
L30335	1 Gal	1		0%	Open	Poor	Yes	0 Gal
L30336	1 Gal	1		0%	Open	Poor	No	0 Gal
L30338	1 L	1	Acrylic	0%	Open	Poor	No	0 L



# May Creek Inventory Report

ID	Container Size	QTY	Existing/Original Label	% Full	Sealed/ Open	Integrity	Leaking?	Estimated Amnt
L30340	1 Gal	1		0%	Open	Poor	Yes	0 Gal
L30353	1 Gal	1		0%	Open	Poor	No	0 Gal
L30354	1 Gal	1		0%	Open	Poor	No	0 Gal
L30355	1 Gal	1	Acrylic	0%	Open	Poor	No	0 Gal
L30377	100 Gal	1		0%	Open	Poor	Yes	0 Gal
L30385	2 L	1	Gasoline	10%	Open	Poor	Yes	0.2 L
L30386	5 L	1	Curing and sealing compound	0%	Open	Poor	Yes	0 L
L40001	5 Gal	1	Mobile gargoyle arctic 300 refrigerant oil	25%	Open	Poor	No	1.25 Gal
L40002	1 Gal	1	Havoline W-4C motor oil	10%	Open	Poor	No	0.1 Gal
L40004	1 Gal	1	Chevron Delo 400 SDE 15w-40	10%	Open	Poor	No	0.1 Gal
L40011	5 Gal	1		50%	Open	Poor	Yes	2.5 Gal
L50004	1 Gal	1	Denatured alcohol	25%	Open	Poor	Yes	0.25 Gal
L50006	30 Gal	1		0%	Open	Poor	Yes	0 Gal
L60009	1 Gal	1		0%	Open	Poor	No	0 Gal
L60010	1 Gal	1	Coleman camp fuel	0%	Open	Poor	No	0 Gal
L60017	1 Gal	1	Bar and chain oil	1%	Open	Poor	No	0.01 Gal
L60024	2 Gal	1	Gasoline	25%	Open	Poor	Yes	0.5 Gal
L60025	1 Gal	1	Protective marine coating B97 C 150	10%	Open	Poor	No	0.1 Gal
L60026	5 Gal	1	This is classified as hazardous waste under	0%	Open	Poor	Yes	0 Gal
L60033	1 Gal	1		75%	Open	Poor	No	0.75 Gal



# May Creek Inventory Report

ID	Container Size	QTY	Existing/Original Label	% Full	Sealed/ Open	Integrity	Leaking?	Estimated Amnt
L60042	100 Gal	1		0%	Open	Poor	No	0 Gal
L60043	20 Gal	1		0%	Open	Poor	No	0 Gal
W10002	5 Gal	1	Gasoline	0%	Open	Poor	No	0 Gal
W10003	5 Gal	1	Gasoline	0%	Open	Poor	No	0 Gal
W10004	1 Gal	1	No marking	50%	Open	Poor	No	0.5 Gal
W10005	5 Quart	1	Gasoline	25%	Open	Poor	No	1.25 Quart
W10006	5 Gal	1	No marking	10%	Open	Poor	No	0.5 Gal
W10007	5 Gal	1	No marking	0%	Open	Poor	No	0 Gal
W10008	5 Gal	1	Gasoline	0%	Open	Poor	No	0 Gal
W10010	55 Gal	1	No marking	10%	Open	Poor	No	5.5 Gal
W10011	5 Gal	1	Gasoline	75%	Open	Poor	No	3.75 Gal
W10012	5 Gal	1	No marking	99%	Open	Poor	No	4.95 Gal
W10013	5 Gal	1	No marking	75%	Open	Poor	No	3.75 Gal
W10014	5 Gal	1	Marking states Mobil oil. Unknown if original liquid.	0%	Open	Poor	No	0 Gal
W10016	5 Gal	1	Gasoline	0%	Open	Poor	No	0 Gal
W10017	5 Gal	1	Marking states Jungle Juice. Unknown if original contents.	75%	Open	Poor	No	3.75 Gal
W10018	5 Gal	1	Gasoline	0%	Open	Poor	No	0 Gal
W10019	5 Gal	1	No marking	0%	Open	Poor	No	0 Gal
W10020	5 Gal	1	No marking	75%	Open	Poor	No	3.75 Gal
W10022	5 Gal	1	No marking	90%	Open	Poor	No	4.5 Gal





# May Creek Inventory Report

ID	Container Size	QTY	Existing/Original Label	% Full	Sealed/ Open	Integrity	Leaking?	Estimated Amnt
W10027	1 Gal	1	No marking	0%	Open	Poor	No	0 Gal
W10030	55 Gal	1	No marking	10%	Open	Poor	No	5.5 Gal
W10031	1 Gal	1	Oil based enamel	0%	Open	Poor	No	0 Gal
W10033	55 Gal	1	No marking	0%	Open	Poor	No	0 Gal
W20007	55 Gal	1	No marking	50%	Open	Poor	No	27.5 Gal
W20012	5 Gal	1	No marking	25%	Open	Poor	No	1.25 Gal
W20019	1 Gal	1	No marking	0%	Open	Poor	No	0 Gal
W20020	5 Gal	1	Hydraulic oil	0%	Open	Poor	No	0 Gal
W20022	5 Gal	1	No marking	100%	Open	Poor	No	5 Gal
W20023	5 Gal	1	Hydraulic oil	0%	Open	Poor	No	0 Gal
W20024	1 Quart	1	Oil base paint	0%	Open	Poor	No	0 Quart
W20028	5 Gal	1	No marking	0%	Open	Poor	No	0 Gal
W20029	5 Gal	1	No marking	25%	Open	Poor	No	1.25 Gal
W20031	5 Gal	1	No marking	10%	Open	Poor	No	0.5 Gal
W20032	1 Gal	20	Car oil containers. Varying size from 1-2 gallons	10%	Open	Poor	No	0.1 Gal

**290 containers in Hazard Subclass 3 – Flammable and Combustible Liquids**



# May Creek Inventory Report

ID	Container Size	QTY	Existing/Original Label	% Full	Sealed/ Open	Integrity	Leaking?	Estimated Amnt
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## Class 5 - Oxidizing Substances and Organic Peroxides QTY: 4

### 5.1 – Oxidizers

ID	Container Size	QTY	Existing/Original Label	% Full	Sealed/ Open	Integrity	Leaking?	Estimated Amnt
B30069	1 Quart	1	Antifreeze	100%	Open	Poor	No	1 Quart
B30094	1 Gal	1	Acrylic latex spackling	100%	Open	Poor	No	1 Gal
W20005	55 Quart	1	No marking	0%	Open	Poor	No	0 Quart

**3 containers in Hazard Subclass 5.1 – Oxidizers**

### 5.2 – Organic Peroxides

ID	Container Size	QTY	Existing/Original Label	% Full	Sealed/ Open	Integrity	Leaking?	Estimated Amnt
B30062	.5 Gal	1	Hydrogen peroxide	25%	Open	Poor	No	0.125 Gal

**1 containers in Hazard Subclass 5.2 – Organic Peroxides**



# May Creek Inventory Report

ID	Container Size	QTY	Existing/Original Label	% Full	Sealed/ Open	Integrity	Leaking?	Estimated Amnt
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## Class 6 - Toxic and Infectious Substances

**QTY: 24**

### 6.1 – Poisonous/Toxic Materials

ID	Container Size	QTY	Existing/Original Label	% Full	Sealed/ Open	Integrity	Leaking?	Estimated Amnt
B10003	15 Pounds	1	Fertilizer	25%	Open	Poor	No	3.75 Pounds
B20038	1 Gal	1	No marking	0%	Open	Poor	No	0 Gal
B20041	2 Lbs	1	Chlorinated granules	0%	Open	Poor	No	0 Lbs
B20047	3 oz.	1	No marking	50%	Open	Poor	No	1.5 oz.
B30018	3 Gal	1	Herbicide	90%	Open	Poor	No	2.7 Gal
B30079	6 oz.	2	Lawn and garden spray	75%	Open	Poor	No	4.5 oz.
B30080	6 oz.	1	Lawn and garden sprayer	50%	Open	Poor	No	3 oz.
B30081	4 oz.	1	FRP adhesives	75%	Open	Poor	No	3 oz.
B30091	4 Gal	1	Round up weed and grass killer	75%	Open	Poor	No	3 Gal
B30095	1 Gal	1	Spectracide herbicide	100%	Open	Poor	No	1 Gal
B30096	1 Gal	1	Wood bleach	100%	Open	Poor	Yes	1 Gal
B30097	1 oz.	1	Furniture refinisher Poison on label	100%	Sealed	Poor	No	1 oz.
B30115	1 Quart	1	Herbicides	10%	Open	Poor	No	0.1 Quart
B30135	16 Pounds	1	Flea spray	10%	Open	Poor	No	1.6 Pounds
B30141	8 Pounds	1	Fogger	90%	Open	Poor	Yes	7.2 Pounds
B30163	1 Gal	1	Stain killer paint	0%	Open	Poor	No	0 Gal



# May Creek Inventory Report

ID	Container Size	QTY	Existing/Original Label	% Full	Sealed/ Open	Integrity	Leaking?	Estimated Amnt
B30188	1 Gal	1	Degreaser	10%	Open	Poor	No	0.1 Gal
B30191	16 oz.	1	Fertilizer	90%	Open	Poor	No	14.4 oz.
B30220	1 Gal	1	Light bulbs	0%	Open	Poor	No	0 Gal
B30313	15 oz.	1	Miracle Gro	25%	Open	Poor	No	3.75 oz.
B30318	8 Quart	1	Miracle Gro plant food	25%	Open	Poor	No	2 Quart
L20022	1 Quart	1	Roundup	75%	Open	Poor	No	0.75 Quart
L60029	3 oz.	1	Round up weed killer	50%	Open	Poor	Yes	1.5 oz.

**24 containers in Hazard Subclass 6.1 – Poisonous/Toxic Materials**



# May Creek Inventory Report

ID	Container Size	QTY	Existing/Original Label	% Full	Sealed/ Open	Integrity	Leaking?	Estimated Amnt
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Class 7 - Radioactive Materials

QTY: 1

7 – Radioactive Materials

ID	Container Size	QTY	Existing/Original Label	% Full	Sealed/ Open	Integrity	Leaking?	Estimated Amnt
L20043	oz.	1		0%	Open	Poor	No	0 oz.

1 containers in Hazard Subclass 7 – Radioactive Materials



# May Creek Inventory Report

ID	Container Size	QTY	Existing/Original Label	% Full	Sealed/ Open	Integrity	Leaking?	Estimated Amnt
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## Class 8 - Corrosive Substances

**QTY: 28**

### 8A – Acidic Corrosive Materials

ID	Container Size	QTY	Existing/Original Label	% Full	Sealed/ Open	Integrity	Leaking?	Estimated Amnt
B30020	1 Gal	1	Concrete cleaner	100%	Open	Poor	No	1 Gal
B30029	5 Gal	1	Soy sauce	75%	Open	Poor	No	3.75 Gal
B30058	1 Gal	1		50%	Open	Poor	No	0.5 Gal
B30066	32 Gal	1	Fudge supreme	25%	Open	Poor	No	8 Gal
B30092	.5 Quart	1	Brazing flux	100%	Open	Poor	No	0.5 Quart

**5 containers in Hazard Subclass 8A – Acidic Corrosive Materials**

### 8B – Basic Corrosive Materials

ID	Container Size	QTY	Existing/Original Label	% Full	Sealed/ Open	Integrity	Leaking?	Estimated Amnt
B10001	1 Gal	1	Outdoor cleaner concentrate	10%	Open	Poor	No	0.1 Gal
B20065	5 L	1		100%	Open	Poor	No	5 L
B30030	1 Quart	1	Outdoor cleaner	25%	Open	Poor	No	0.25 Quart
B30035	1.5 L	1	Window cleaner	100%	Sealed	Poor	No	1.5 L
B30038	1 L	1		100%	Sealed	Poor	No	1 L
B30056	1 Quart	1		100%	Sealed	Poor	No	1 Quart
B30063	1 Pounds	1	Ammonia	75%	Open	Poor	No	0.75 Pounds



### **23 containers in Hazard Subclass 8B – Basic Corrosive Materials**



# May Creek Inventory Report

ID	Container Size	QTY	Existing/Original Label	% Full	Sealed/ Open	Integrity	Leaking?	Estimated Amnt
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## Class 9 – Miscellaneous Hazardous Materials

### QTY: 1036

### 9 – Miscellaneous Hazardous Materials

ID	Container Size	QTY	Existing/Original Label	% Full	Sealed/ Open	Integrity	Leaking?	Estimated Amnt
B10002	1 Quart	1		10%	Open	Poor	No	0.1 Quart
B20003	55 Gal	1		100%	Open	Poor	No	55 Gal
B20022	10 oz.	1	No marking	25%	Open	Poor	No	2.5 oz.
B20024	5 Gal	11	Gasoline	10%	Open	Poor	No	0.5 Gal
B20026	10 Gal	1		10%	Open	Poor	No	1 Gal
B20027	15 Gal	1		10%	Open	Poor	No	1.5 Gal
B20028	5 Gal	35	No marking	10%	Open	Poor	No	0.5 Gal
B20029	1 Gal	1	No marking. Paint can	0%	Open	Poor	No	0 Gal
B20030	1 Quart	1	Premixed vinyl spackle	0%	Open	Poor	No	0 Quart
B20031	1 Quart	1	Wall covering adhesive	0%	Open	Poor	No	0 Quart
B20032	1 Quart	1	No marking	0%	Open	Poor	No	0 Quart
B20033	1 Gal	1	Adhesive	0%	Open	Poor	No	0 Gal
B20035	1 Quart	1	Glaze	0%	Open	Poor	No	0 Quart
B20037	1 Gal	1	No marking	0%	Open	Poor	Yes	0 Gal
B20039	1 Quart	1	No marking	0%	Open	Poor	No	0 Quart
B20043	5 Gal	2	No marking	0%	Open	Poor	Yes	0 Gal





# May Creek Inventory Report

ID	Container Size	QTY	Existing/Original Label	% Full	Sealed/ Open	Integrity	Leaking?	Estimated Amnt
B20045	1 Quart	1	Quick car detailer	0%	Open	Poor	No	0 Quart
B20048	5 Gal	2	Interior latex paint	0%	Open	Poor	No	0 Gal
B20049	2 Gal	1	Mastic	0%	Open	Poor	No	0 Gal
B20054	1 Quart	2	No marking	0%	Open	Poor	Yes	0 Quart
B20055	1 Quart	2	Gojo	0%	Open	Poor	Yes	0 Quart
B20059	10 Gal	1	No marking	10%	Open	Poor	No	1 Gal
B20060	55 Gal	1	No marking	10%	Open	Poor	No	5.5 Gal
B30010	5 Gal	1		25%	Open	Poor	Yes	1.25 Gal
B30017	3 Gal	1		0%	Open	Poor	No	0 Gal
B30021	1 Gal	1	Patio sealer	100%	Open	Poor	No	1 Gal
B30022	1 Gal	1	Latex based waterproofing sealer	50%	Open	Poor	No	0.5 Gal
B30023	1 Gal	1	Lanolin	0%	Open	Poor	No	0 Gal
B30025	1 Gal	1		75%	Open	Poor	Yes	0.75 Gal
B30026	1 Gal	1	Primer	75%	Open	Poor	Yes	0.75 Gal
B30027	5 Gal	1		75%	Open	Poor	No	3.75 Gal
B30028	5 Gal	1	Benjamin moore	75%	Open	Poor	No	3.75 Gal
B30031	1 Gal	1		25%	Open	Poor	No	0.25 Gal
B30032	1 Gal	1	Joint compound	25%	Open	Poor	No	0.25 Gal
B30033	1 Gal	1		75%	Open	Poor	No	0.75 Gal
B30034	1 L	1	Rust oleum deglosser	100%	Sealed	Poor	No	1 L



# May Creek Inventory Report

ID	Container Size	QTY	Existing/Original Label	% Full	Sealed/ Open	Integrity	Leaking?	Estimated Amnt
B30036	6 oz.	1		75%	Open	Poor	No	4.5 oz.
B30037	6 oz.	1		75%	Open	Poor	No	4.5 oz.
B30046	5 Gal	1	Hydraulic fluid	100%	Open	Poor	No	5 Gal
B30052	8 oz.	1		25%	Open	Poor	No	2 oz.
B30053	1 L	1		75%	Open	Poor	No	0.75 L
B30054	8 oz.	1		75%	Open	Poor	No	6 oz.
B30055	1 L	1		75%	Open	Poor	No	0.75 L
B30057	.75 L	1		25%	Open	Poor	No	0.1875 L
B30060	1.5 Pounds	1	Bath salts	100%	Open	Poor	No	1.5 Pounds
B30065	1 Gal	1	Solvent free adhesive	75%	Open	Poor	No	0.75 Gal
B30067	3 Gal	1	Adhesive	25%	Open	Poor	No	0.75 Gal
B30068	3 Gal	1	Polyurethane	25%	Open	Poor	No	0.75 Gal
B30071	1 Quart	1		100%	Open	Poor	No	1 Quart
B30072	1 Quart	1	Wood stain	75%	Open	Poor	No	0.75 Quart
B30078	5 Gal	1		0%	Open	Poor	Yes	0 Gal
B30082	5 Gal	1	Liquid ice melter	25%	Open	Poor	No	1.25 Gal
B30083	5 Gal	1		100%	Open	Poor	No	5 Gal
B30086	.75 Quart	1	Sodium bicarbonate	100%	Open	Poor	No	0.75 Quart
B30087	1 Quart	1		1%	Open	Poor	No	0.01 Quart
B30088	1 Quart	1	Ortho lawn sprayer	1%	Open	Poor	No	0.01 Quart



# May Creek Inventory Report

ID	Container Size	QTY	Existing/Original Label	% Full	Sealed/ Open	Integrity	Leaking?	Estimated Amnt
B30089	4 oz.	1	Record cleaner fluid	75%	Open	Poor	No	3 oz.
B30090	4 oz.	1	Elmer's glue	75%	Open	Poor	No	3 oz.
B30103	13 oz.	1	Leather conditioner	25%	Open	Poor	No	3.25 oz.
B30104	14 oz.	1	Torpedo	75%	Open	Poor	No	10.5 oz.
B30105	5 Pounds	1	White lead	100%	Open	Poor	No	5 Pounds
B30106	14 oz.	1	Plumbers putty	100%	Open	Poor	No	14 oz.
B30110	16 oz.	1	Paste wax	75%	Open	Poor	No	12 oz.
B30113	10.1 oz.	5	Latex caulking	90%	Open	Poor	No	9.09 oz.
B30114	16 oz.	1	Car shampoo	90%	Open	Poor	No	14.4 oz.
B30116	1 Gal	2	Joint compound	75%	Open	Poor	No	0.75 Gal
B30117	1 Gal	2	Quick set cement	75%	Open	Poor	No	0.75 Gal
B30119	8 oz.	1		50%	Open	Poor	No	4 oz.
B30122	1 L	1	Mold masters	100%	Open	Poor	No	1 L
B30123	1 Quart	1	Sulfur based joint compound	75%	Open	Poor	No	0.75 Quart
B30124	4 oz.	1	Graphite powder	50%	Open	Poor	No	2 oz.
B30127	1 Quart	1		75%	Open	Poor	No	0.75 Quart
B30129	32 oz.	4	Sparkling paste	100%	Open	Poor	No	32 oz.
B30133	15 oz.	1	Tire black paint	25%	Open	Poor	No	3.75 oz.
B30134	15 oz.	1	Latex enamel	25%	Open	Poor	No	3.75 oz.
B30138	8 oz.	1	Latex paint	50%	Open	Poor	No	4 oz.



# May Creek Inventory Report

ID	Container Size	QTY	Existing/Original Label	% Full	Sealed/ Open	Integrity	Leaking?	Estimated Amnt
B30139	8 oz.	1	Old English scratch over	25%	Open	Poor	No	2 oz.
B30140	2 oz.	1	Valve lapping compound	100%	Open	Poor	No	2 oz.
B30149	1 Gal	6	Paint	10%	Open	Poor	No	0.1 Gal
B30150	1 Gal	7		0%	Open	Poor	No	0 Gal
B30153	5 Gal	7		0%	Open	Poor	No	0 Gal
B30155	5 Gal	1		50%	Open	Poor	No	2.5 Gal
B30157	1 Gal	1	Sealant	90%	Open	Poor	No	0.9 Gal
B30159	1 Gal	1	Concrete bonding adhesive	50%	Open	Poor	No	0.5 Gal
B30162	1 Gal	1		0%	Open	Poor	No	0 Gal
B30164	1 Quart	1	Bonding primer	0%	Open	Poor	No	0 Quart
B30165	1 Quart	1	Latex Paint	0%	Open	Poor	No	0 Quart
B30166	1 Quart	1	Paint	0%	Open	Poor	No	0 Quart
B30167	1 Gal	1		0%	Open	Poor	No	0 Gal
B30168	1 Gal	1	Paint Contains Aluminum oxide	50%	Open	Poor	No	0.5 Gal
B30169	1 Gal	1		100%	Open	Poor	No	1 Gal
B30170	1 Gal	1		100%	Open	Poor	No	1 Gal
B30172	1 Gal	1		100%	Open	Poor	No	1 Gal
B30174	1 Gal	1		100%	Open	Poor	No	1 Gal
B30175	1 Gal	1		0%	Open	Poor	Yes	0 Gal
B30176	1 Gal	1		0%	Open	Poor	No	0 Gal



# May Creek Inventory Report

ID	Container Size	QTY	Existing/Original Label	% Full	Sealed/ Open	Integrity	Leaking?	Estimated Amnt
B30177	1 Gal	1		0%	Open	Poor	No	0 Gal
B30178	5 Gal	1		0%	Open	Poor	Yes	0 Gal
B30179	5 Gal	1		0%	Open	Poor	Yes	0 Gal
B30180	5 Gal	1		0%	Open	Poor	Yes	0 Gal
B30182	1 Quart	1		100%	Open	Poor	No	1 Quart
B30190	8 oz.	1	Marking chalk	50%	Open	Poor	No	4 oz.
B30192	1.6 oz.	1	Shoe cream	100%	Open	Poor	No	1.6 oz.
B30193	1 Pounds	1	Sodium bicarbonate	100%	Open	Poor	No	1 Pounds
B30194	16 oz.	1		90%	Open	Poor	No	14.4 oz.
B30195	8 oz.	1	Car wax	90%	Open	Poor	No	7.2 oz.
B30196	1 Pounds	1	Tile grout	100%	Open	Poor	No	1 Pounds
B30198	1 Pounds	1		100%	Open	Poor	No	1 Pounds
B30201	5 Gal	1		50%	Open	Poor	No	2.5 Gal
B30202	5 Gal	1		50%	Open	Poor	No	2.5 Gal
B30203	5 Gal	1		100%	Open	Poor	No	5 Gal
B30207	1 Quart	1	Acrylic paint	100%	Open	Poor	No	1 Quart
B30210	1 Gal	1	Spackling paste	100%	Open	Poor	No	1 Gal
B30211	1 Gal	1		100%	Open	Poor	No	1 Gal
B30217	5 Gal	1		75%	Open	Poor	No	3.75 Gal
B30218	1 Gal	1	Tile adhesive	50%	Open	Poor	No	0.5 Gal



# May Creek Inventory Report

ID	Container Size	QTY	Existing/Original Label	% Full	Sealed/ Open	Integrity	Leaking?	Estimated Amnt
B30219	.5 Gal	1	Fertilizer bottles	0%	Open	Poor	No	0 Gal
B30223	12 oz.	1	Car wax	100%	Open	Poor	No	12 oz.
B30225	1 Gal	3		0%	Open	Poor	No	0 Gal
B30228	5 Gal	18	Gasoline	0%	Open	Poor	Yes	0 Gal
B30229	55 Gal	8		0%	Open	Poor	No	0 Gal
B30300	20 Gal	1		0%	Open	Poor	Yes	0 Gal
B30304	55 Gal	4		0%	Open	Poor	No	0 Gal
B30306	5 Gal	9		0%	Open	Poor	Yes	0 Gal
B30309	40 Gal	1		0%	Open	Poor	No	0 Gal
B30312	10 oz.	1		25%	Open	Poor	Yes	2.5 oz.
B40001	1 Gal	1		50%	Sealed	Poor	No	0.5 Gal
B40002	1 Gal	2		25%	Open	Poor	No	0.25 Gal
B40003	2 Pounds	1		75%	Open	Poor	No	1.5 Pounds
B40004	.5 Gal	4		0%	Open	Poor	No	0 Gal
B40005	5 Gal	1		50%	Open	Poor	No	2.5 Gal
B40006	20 Gal	1		0%	Open	Poor	No	0 Gal
B40008	5 Gal	1		100%	Open	Poor	No	5 Gal
B50001	5 Gal	1		0%	Open	Poor	Yes	0 Gal
B50002	15 Gal	1		0%	Open	Poor	No	0 Gal
B50003	25 Gal	1		0%	Open	Poor	No	0 Gal



# May Creek Inventory Report

ID	Container Size	QTY	Existing/Original Label	% Full	Sealed/ Open	Integrity	Leaking?	Estimated Amnt
B50004	30 Gal	1		0%	Open	Poor	No	0 Gal
L10004	6 Gal	1	Jungle juice	1%	Open	Poor	No	0.06 Gal
L10005	1 Gal	1	Prestone ez pour	25%	Open	Poor	No	0.25 Gal
L10006	3 Gal	1		25%	Open	Poor	No	0.75 Gal
L10007	1 Gal	1	Antifreeze and coolant. 50/50 pre diluted	100%	Sealed	Fair	No	1 Gal
L10011	1 Gal	1	Primer	0%	Open	Poor	No	0 Gal
L10012	1 Gal	1	Latex enamel	0%	Open	Poor	No	0 Gal
L10013	1 Gal	1	Latex enamel	0%	Open	Poor	Yes	0 Gal
L10017	1 Gal	1	Latex paint	0%	Open	Poor	No	0 Gal
L10018	1 Gal	1	Latex paint	0%	Open	Poor	No	0 Gal
L10019	1 Gal	1	Latex paint	0%	Open	Poor	No	0 Gal
L10022	2.5 Gal	11	Gasoline	10%	Open	Poor	No	0.25 Gal
L10024	.75 Quart	1	Jet puff jar. Not the original container	0%	Open	Poor	No	0 Quart
L10025	.75 Quart	1		0%	Open	Poor	Yes	0 Quart
L10026	.75 Quart	1		0%	Open	Poor	No	0 Quart
L10027	1 Quart	1		0%	Open	Poor	Yes	0 Quart
L10028	1 Gal	1	Acrylic house paint	0%	Open	Poor	No	0 Gal
L10029	1 Quart	1		0%	Open	Poor	No	0 Quart
L10030	1 Quart	1		0%	Open	Poor	No	0 Quart
L10031	1 Quart	1		0%	Open	Poor	Yes	0 Quart



# May Creek Inventory Report

ID	Container Size	QTY	Existing/Original Label	% Full	Sealed/ Open	Integrity	Leaking?	Estimated Amnt
L10034	1 Gal	1		0%	Open	Poor	Yes	0 Gal
L10035	1 Gal	1		0%	Open	Poor	Yes	0 Gal
L10036	1.5 Gal	1		0%	Open	Poor	Yes	0 Gal
L10037	1 Gal	1		0%	Open	Poor	Yes	0 Gal
L10038	1 Gal	1		0%	Open	Poor	Yes	0 Gal
L10040	1 Gal	1	Anti seize and lubricating compound	0%	Open	Poor	Yes	0 Gal
L10041	5 Gal	1		0%	Open	Poor	No	0 Gal
L10042	5 Gal	1		0%	Open	Poor	No	0 Gal
L10043	5 Gal	1	Acrylic paint	75%	Open	Poor	Yes	3.75 Gal
L10044	5 Gal	1		0%	Open	Poor	No	0 Gal
L10045	5 Gal	1		0%	Open	Poor	No	0 Gal
L10046	5 Gal	1	Enamel	0%	Open	Poor	No	0 Gal
L10047	5 Gal	1	Acrylic paint	0%	Open	Poor	Yes	0 Gal
L10048	5 Gal	1		0%	Open	Poor	No	0 Gal
L10049	5 Gal	1		0%	Open	Poor	No	0 Gal
L10050	5 Gal	1		0%	Open	Poor	No	0 Gal
L10053	5 Gal	1		25%	Open	Poor	Yes	1.25 Gal
L10054	5 Gal	1		0%	Open	Poor	No	0 Gal
L10055	5 Gal	1		0%	Open	Poor	No	0 Gal
L10057	5 Gal	1		0%	Open	Poor	No	0 Gal





# May Creek Inventory Report

ID	Container Size	QTY	Existing/Original Label	% Full	Sealed/ Open	Integrity	Leaking?	Estimated Amnt
L10059	5 Gal	1		75%	Open	Poor	Yes	3.75 Gal
L10060	5 Gal	1		0%	Open	Poor	No	0 Gal
L10061	5 Gal	1		0%	Open	Poor	No	0 Gal
L10063	5 Gal	1	Molub- alloy Dated 1976	0%	Open	Poor	Yes	0 Gal
L10065	5 Gal	1	Paint	75%	Open	Poor	No	3.75 Gal
L10066	5 Gal	1		0%	Open	Poor	No	0 Gal
L10067	5 Gal	1		50%	Open	Poor	Yes	2.5 Gal
L10068	5 Gal	1	Acrylic paint	0%	Open	Poor	No	0 Gal
L10070	5 Gal	1		0%	Open	Poor	No	0 Gal
L10071	5 Gal	1		0%	Open	Poor	No	0 Gal
L10072	5 Gal	1		75%	Open	Poor	Yes	3.75 Gal
L10073	5 Gal	1		0%	Open	Poor	No	0 Gal
L10074	5 Gal	1		0%	Open	Poor	No	0 Gal
L10075	5 Gal	1		0%	Open	Poor	No	0 Gal
L10077	5 Gal	1		0%	Open	Poor	No	0 Gal
L10078	5 Gal	1	Acrylic paint	0%	Open	Poor	No	0 Gal
L10080	5 Gal	1		0%	Open	Poor	No	0 Gal
L10081	5 Gal	1		0%	Open	Poor	No	0 Gal
L10082	5 Gal	1		0%	Open	Poor	No	0 Gal
L10083	5 Gal	1		0%	Open	Poor	No	0 Gal



# May Creek Inventory Report

ID	Container Size	QTY	Existing/Original Label	% Full	Sealed/ Open	Integrity	Leaking?	Estimated Amnt
L10084	5 Gal	1		0%	Open	Poor	No	0 Gal
L10085	5 Gal	1		0%	Open	Poor	No	0 Gal
L10086	5 Gal	1		0%	Open	Poor	No	0 Gal
L10087	5 Gal	1		0%	Open	Poor	No	0 Gal
L10088	5 Gal	1		0%	Open	Poor	No	0 Gal
L10090	5 Gal	1	Acrylic paint	0%	Open	Poor	No	0 Gal
L10091	5 Gal	1		0%	Open	Poor	No	0 Gal
L10092	5 Gal	1		0%	Open	Poor	No	0 Gal
L10093	5 Gal	1	Acrylic paint	0%	Open	Poor	No	0 Gal
L10094	5 Gal	1		0%	Open	Poor	No	0 Gal
L10095	5 Gal	1		0%	Open	Poor	No	0 Gal
L10096	1 Gal	1		0%	Open	Poor	Yes	0 Gal
L10097	5 Gal	1		0%	Open	Poor	No	0 Gal
L10098	5 Gal	1		0%	Open	Poor	No	0 Gal
L10099	5 Gal	1		0%	Open	Poor	No	0 Gal
L10101	5 Gal	1		0%	Open	Poor	No	0 Gal
L10104	5 Gal	1		0%	Open	Poor	No	0 Gal
L10105	5 Gal	1	Acrylic paint	0%	Open	Poor	No	0 Gal
L10106	5 Gal	1		0%	Open	Poor	No	0 Gal
L10107	5 Gal	1	Enamel	0%	Open	Poor	No	0 Gal



# May Creek Inventory Report

ID	Container Size	QTY	Existing/Original Label	% Full	Sealed/ Open	Integrity	Leaking?	Estimated Amnt
L10108	5 Gal	1		0%	Open	Poor	No	0 Gal
L10110	5 Gal	1		0%	Open	Poor	No	0 Gal
L10111	5 Gal	1		0%	Open	Poor	No	0 Gal
L10113	5 Gal	1		0%	Open	Poor	No	0 Gal
L10114	5 Gal	1	Latex paint	0%	Open	Poor	No	0 Gal
L10115	5 Gal	1		0%	Open	Poor	No	0 Gal
L10117	5 Gal	1		0%	Open	Poor	Yes	0 Gal
L10120	5 Gal	1		0%	Open	Poor	No	0 Gal
L10121	5 Gal	1		0%	Open	Poor	No	0 Gal
L10122	5 Gal	1	Acrylic paint	75%	Open	Poor	Yes	3.75 Gal
L10123	5 Gal	1		0%	Open	Poor	No	0 Gal
L10124	5 Gal	1		0%	Open	Poor	No	0 Gal
L10125	5 Gal	1		0%	Open	Poor	No	0 Gal
L10126	5 Gal	1		0%	Open	Poor	No	0 Gal
L10127	5 Gal	1		0%	Open	Poor	No	0 Gal
L10128	5 Gal	1		0%	Open	Poor	No	0 Gal
L10131	1 Gal	1		0%	Open	Poor	Yes	0 Gal
L10132	1 Gal	1		0%	Open	Poor	Yes	0 Gal
L10133	50 Gal	50		0%	Open	Poor	Yes	0 Gal
L10136	1 Gal	1	Semi gloss latex	25%	Open	Poor	No	0.25 Gal



# May Creek Inventory Report

ID	Container Size	QTY	Existing/Original Label	% Full	Sealed/ Open	Integrity	Leaking?	Estimated Amnt
L10137	5 Gal	1		25%	Open	Poor	No	1.25 Gal
L10138	1 Gal	1		25%	Open	Poor	No	0.25 Gal
L10139	.5 Gal	1		50%	Open	Poor	No	0.25 Gal
L10143	1 Pounds	1		0%	Open	Poor	No	0 Pounds
L10144	2 L	1		0%	Open	Poor	Yes	0 L
L20002	1 Gal	1	Antifreeze coolant	0%	Open	Poor	Yes	0 Gal
L20004	1 Gal	1	Antifreeze coolant	0%	Open	Poor	No	0 Gal
L20006	1 Gal	1	Antifreeze coolant	0%	Open	Poor	Yes	0 Gal
L20007	2 Gal	1		0%	Open	Poor	Yes	0 Gal
L20008	1 Gal	1	Antifreeze coolant	0%	Open	Poor	No	0 Gal
L20010	1 Gal	1		0%	Open	Poor	Yes	0 Gal
L20014	.5 oz.	1	Silicone lube	75%	Open	Poor	No	0.375 oz.
L20019	6 Gal	1	Jungle juice	0%	Open	Poor	No	0 Gal
L20023	1 Gal	1		10%	Open	Poor	No	0.1 Gal
L20024	2 Gal	1	Gasoline	0%	Open	Poor	Yes	0 Gal
L20025	1 Gal	1		0%	Open	Poor	Yes	0 Gal
L20026	2 Gal	1	Concrete waterproofing	90%	Open	Poor	No	1.8 Gal
L20029	5 Gal	1		0%	Open	Poor	No	0 Gal
L20031	5 Gal	1		25%	Open	Poor	Yes	1.25 Gal
L20032	5 Gal	1	Acrylic latex	0%	Open	Poor	No	0 Gal



# May Creek Inventory Report

ID	Container Size	QTY	Existing/Original Label	% Full	Sealed/ Open	Integrity	Leaking?	Estimated Amnt
L20033	3 Gal	1		100%	Open	Poor	No	3 Gal
L20034	1 Pounds	1		0%	Open	Poor	No	0 Pounds
L20036	5 Gal	1		25%	Open	Poor	No	1.25 Gal
L20038	4000 Gal	1		0%	Open	Poor	No	0 Gal
L20040	1 Gal	4		0%	Open	Poor	Yes	0 Gal
L20044	oz.	2		0%	Open	Poor	No	0 oz.
L20045	20 Pounds	1		0%	Open	Poor	No	0 Pounds
L20046	5 Gal	1	Kerosene	0%	Open	Poor	No	0 Gal
L30001	1 Gal	1	None	0%	Open	Poor	No	0 Gal
L30002	1 Gal	1	None	0%	Open	Poor	Yes	0 Gal
L30003	1 Gal	1	Plymouth gray	0%	Open	Poor	No	0 Gal
L30004	1 Gal	1	Kelly Moore paint	0%	Open	Poor	No	0 Gal
L30005	1 Gal	1	Lid says Kelly Moore paint	0%	Open	Poor	No	0 Gal
L30006	1 Gal	1	None	0%	Open	Poor	No	0 Gal
L30007	1 Gal	1	Label from dulux paint center on side	0%	Open	Poor	Yes	0 Gal
L30008	1 Gal	1	None	0%	Open	Poor	No	0 Gal
L30009	1 Gal	1	None	0%	Open	Poor	No	0 Gal
L30010	1 Gal	1	Part of a miller paint label	0%	Open	Poor	No	0 Gal
L30011	1 Gal	1	Wallboard joint compound	50%	Open	Poor	Yes	0.5 Gal
L30012	3 Gal	1	Color Tile	0%	Open	Poor	No	0 Gal



# May Creek Inventory Report

ID	Container Size	QTY	Existing/Original Label	% Full	Sealed/ Open	Integrity	Leaking?	Estimated Amnt
L30014	2 Gal	1		0%	Open	Poor	No	0 Gal
L30020	5 Gal	1	Wallboard joint compound	0%	Open	Poor	No	0 Gal
L30021	5 Gal	1		0%	Open	Poor	No	0 Gal
L30022	1 L	1		0%	Open	Poor	No	0 L
L30025	5 Gal	1		0%	Open	Poor	No	0 Gal
L30026	5 Gal	1		0%	Open	Poor	No	0 Gal
L30027	5 Gal	1		0%	Open	Poor	No	0 Gal
L30029	1 Gal	1	Word paint present on degrading label	0%	Open	Poor	Yes	0 Gal
L30030	1 Gal	1	Latex paint present on degrading label	0%	Open	Poor	No	0 Gal
L30031	1 Gal	1		0%	Open	Poor	No	0 Gal
L30032	1 Gal	1	Miller paint	0%	Open	Poor	No	0 Gal
L30033	1 Gal	1	Latex	0%	Open	Poor	Yes	0 Gal
L30034	1 Quart	1		0%	Open	Poor	No	0 Quart
L30035	1 Quart	1	Valspar on label	0%	Open	Poor	No	0 Quart
L30036	1 Quart	1	Primer and sealer on label	0%	Open	Poor	No	0 Quart
L30037	1 Quart	1		0%	Open	Poor	Yes	0 Quart
L30038	1 Quart	1	Custom patching compound	0%	Open	Poor	No	0 Quart
L30040	1 Quart	1		0%	Open	Poor	No	0 Quart
L30041	1 Quart	1	Primer and sealer	0%	Open	Poor	No	0 Quart
L30043	1 Gal	1		0%	Open	Poor	No	0 Gal



# May Creek Inventory Report

ID	Container Size	QTY	Existing/Original Label	% Full	Sealed/ Open	Integrity	Leaking?	Estimated Amnt
L30044	1 Gal	1	Acrylic enamel	0%	Open	Poor	No	0 Gal
L30045	1 Gal	1		0%	Open	Poor	No	0 Gal
L30046	1 Gal	1		0%	Open	Poor	No	0 Gal
L30047	1 Gal	1	Interior latex paint	0%	Open	Poor	No	0 Gal
L30048	1 Gal	1		0%	Open	Poor	No	0 Gal
L30049	1 Gal	1		0%	Open	Poor	No	0 Gal
L30050	1 Gal	1	Moore customized color	0%	Open	Poor	No	0 Gal
L30051	1 Gal	1		0%	Open	Poor	No	0 Gal
L30052	1 Gal	1		0%	Open	Poor	No	0 Gal
L30053	1 Gal	1	Alkyd-acrylic finish	0%	Open	Poor	Yes	0 Gal
L30054	1 Gal	1		0%	Open	Poor	No	0 Gal
L30055	1 Gal	1	Egg shell latex	0%	Open	Poor	No	0 Gal
L30056	1 Gal	1	Miller paints	0%	Open	Poor	Yes	0 Gal
L30058	1 Gal	1		0%	Open	Poor	No	0 Gal
L30059	1 Gal	1	Deluxe paint center label	0%	Open	Poor	No	0 Gal
L30060	1 Gal	1		0%	Open	Poor	No	0 Gal
L30061	1 Gal	1		0%	Open	Poor	Yes	0 Gal
L30062	1 Gal	1		0%	Open	Poor	Yes	0 Gal
L30063	1 Gal	1	Miller paint	0%	Open	Poor	No	0 Gal
L30064	1 Gal	1	Paint mention on label	0%	Open	Poor	Yes	0 Gal



# May Creek Inventory Report

ID	Container Size	QTY	Existing/Original Label	% Full	Sealed/ Open	Integrity	Leaking?	Estimated Amnt
L30065	1 Gal	1		0%	Open	Poor	No	0 Gal
L30066	1 Gal	1		0%	Open	Poor	No	0 Gal
L30067	1 Gal	1		0%	Open	Poor	No	0 Gal
L30068	1 Gal	1	Paint on label	0%	Open	Poor	Yes	0 Gal
L30069	1 Gal	1		0%	Open	Poor	Yes	0 Gal
L30070	1 Gal	1	Acrylic gloss coating	0%	Open	Poor	No	0 Gal
L30071	1 Gal	1		0%	Open	Poor	No	0 Gal
L30072	1 Gal	1	Acrylic paint	0%	Open	Poor	No	0 Gal
L30073	1 Gal	1		0%	Open	Poor	No	0 Gal
L30074	1 Gal	1		0%	Open	Poor	No	0 Gal
L30075	1 Gal	1		0%	Open	Poor	No	0 Gal
L30076	1 Gal	1	Miller paint	0%	Open	Poor	No	0 Gal
L30077	1 Gal	1		0%	Open	Poor	Yes	0 Gal
L30078	1 Gal	1		0%	Open	Poor	Yes	0 Gal
L30079	1 Gal	1		0%	Open	Poor	No	0 Gal
L30080	1 Gal	1		0%	Open	Poor	No	0 Gal
L30081	1 Gal	1	Miller paint	0%	Open	Poor	No	0 Gal
L30082	1 Gal	1	Miller latex	0%	Open	Poor	No	0 Gal
L30083	1 Gal	1		0%	Open	Poor	No	0 Gal
L30084	1 Gal	1		0%	Open	Poor	No	0 Gal





# May Creek Inventory Report

ID	Container Size	QTY	Existing/Original Label	% Full	Sealed/ Open	Integrity	Leaking?	Estimated Amnt
L30085	1 Gal	1		0%	Open	Poor	No	0 Gal
L30086	1 Gal	1		0%	Open	Poor	No	0 Gal
L30087	1 Gal	1		0%	Open	Poor	No	0 Gal
L30088	1 Gal	1	Acrylic	0%	Open	Poor	No	0 Gal
L30089	1 Gal	1		0%	Open	Poor	No	0 Gal
L30090	1 Gal	1		0%	Open	Poor	No	0 Gal
L30091	1 Gal	1		0%	Open	Poor	No	0 Gal
L30092	1 Gal	1		0%	Open	Poor	No	0 Gal
L30093	1 Gal	1		0%	Open	Poor	No	0 Gal
L30094	1 Gal	1		0%	Open	Poor	No	0 Gal
L30095	1 Gal	1		0%	Open	Poor	No	0 Gal
L30096	1 Gal	1		0%	Open	Poor	No	0 Gal
L30097	1 Gal	1		0%	Open	Poor	No	0 Gal
L30098	1 Gal	1		0%	Open	Poor	No	0 Gal
L30099	1 Gal	1		0%	Open	Poor	No	0 Gal
L30100	1 Gal	1		0%	Open	Poor	No	0 Gal
L30101	1 Gal	1	Miller acrylic paint	0%	Open	Poor	No	0 Gal
L30102	1 Gal	1		0%	Open	Poor	No	0 Gal
L30103	1 Gal	1		0%	Open	Poor	No	0 Gal
L30104	1 Gal	1		0%	Open	Poor	No	0 Gal



# May Creek Inventory Report

ID	Container Size	QTY	Existing/Original Label	% Full	Sealed/ Open	Integrity	Leaking?	Estimated Amnt
L30105	1 Gal	1		0%	Open	Poor	No	0 Gal
L30106	1 Gal	1	Latex paint	0%	Open	Poor	Yes	0 Gal
L30107	1 Gal	1	Miller paint	0%	Open	Poor	Yes	0 Gal
L30108	1 Gal	1		0%	Open	Poor	No	0 Gal
L30109	1 Gal	1		0%	Open	Poor	No	0 Gal
L30110	1 Gal	1		0%	Open	Poor	No	0 Gal
L30111	1 Gal	1		0%	Open	Poor	No	0 Gal
L30112	1 Gal	1	Water based paint	0%	Open	Poor	No	0 Gal
L30114	1 Gal	1	Wall primer	0%	Open	Poor	No	0 Gal
L30115	1 Gal	1		0%	Open	Poor	Yes	0 Gal
L30116	1 Gal	1		0%	Open	Poor	No	0 Gal
L30117	1 Gal	1		0%	Open	Poor	No	0 Gal
L30118	1 Gal	1	Moore paint	0%	Open	Poor	No	0 Gal
L30119	1 Gal	1		0%	Open	Poor	No	0 Gal
L30120	1 Gal	1		0%	Open	Poor	No	0 Gal
L30121	1 Gal	1		0%	Open	Poor	No	0 Gal
L30122	1 Gal	1		0%	Open	Poor	No	0 Gal
L30123	1 Gal	1		0%	Open	Poor	No	0 Gal
L30124	1 Gal	1		0%	Open	Poor	No	0 Gal
L30125	1 Gal	1		0%	Open	Poor	No	0 Gal



# May Creek Inventory Report

ID	Container Size	QTY	Existing/Original Label	% Full	Sealed/ Open	Integrity	Leaking?	Estimated Amnt
L30126	1 Gal	1		0%	Open	Poor	No	0 Gal
L30127	1 Gal	1		0%	Open	Poor	No	0 Gal
L30128	1 Gal	1		0%	Open	Poor	No	0 Gal
L30129	1 Gal	1		0%	Open	Poor	No	0 Gal
L30130	1 Gal	1	Latex	0%	Open	Poor	No	0 Gal
L30131	1 Gal	1		0%	Open	Poor	No	0 Gal
L30132	1 Gal	1		0%	Open	Poor	No	0 Gal
L30133	1 Gal	1		0%	Open	Poor	No	0 Gal
L30134	1 Gal	1		0%	Open	Poor	No	0 Gal
L30135	1 Gal	1		0%	Open	Poor	No	0 Gal
L30136	1 Gal	1		0%	Open	Poor	No	0 Gal
L30137	1 Gal	1		0%	Open	Poor	No	0 Gal
L30138	1 Gal	1		0%	Open	Poor	No	0 Gal
L30139	1 Gal	1		0%	Open	Poor	No	0 Gal
L30140	1 Gal	1		0%	Open	Poor	No	0 Gal
L30141	18 Bulb	23				Poor	N/A	0 Bulb
L30142	7 Bulb	7			Open	Poor	N/A	0 Bulb
L30144	1 Gal	1		0%	Open	Poor	No	0 Gal
L30145	1 Gal	1		0%	Open	Poor	No	0 Gal
L30146	1 Gal	1		0%	Open	Poor	No	0 Gal



# May Creek Inventory Report

ID	Container Size	QTY	Existing/Original Label	% Full	Sealed/ Open	Integrity	Leaking?	Estimated Amnt
L30147	1 Gal	1		0%	Open	Poor	No	0 Gal
L30149	1 Gal	1		0%	Open	Poor	No	0 Gal
L30150	1 Gal	1		0%	Open	Poor	No	0 Gal
L30151	1 Gal	1		0%	Open	Poor	No	0 Gal
L30152	1 Gal	1		0%	Open	Poor	No	0 Gal
L30153	1 Gal	1		0%	Open	Poor	No	0 Gal
L30154	1 Gal	1		0%	Open	Poor	No	0 Gal
L30155	1 Gal	1		0%	Open	Poor	No	0 Gal
L30157	1 Gal	1		0%	Open	Poor	No	0 Gal
L30158	1 Gal	1		0%	Open	Poor	No	0 Gal
L30159	1 Gal	1	Acrylic latex	0%	Open	Poor	No	0 Gal
L30160	1 Gal	1		0%	Open	Poor	No	0 Gal
L30161	1 Gal	1		0%	Open	Poor	No	0 Gal
L30162	1 Gal	1		0%	Open	Poor	No	0 Gal
L30163	1 Gal	1		0%	Open	Poor	No	0 Gal
L30164	1 Gal	1		0%	Open	Poor	No	0 Gal
L30165	1 Gal	1		0%	Open	Poor	No	0 Gal
L30166	1 Gal	1		0%	Open	Poor	No	0 Gal
L30167	1 Gal	1		0%	Open	Poor	No	0 Gal
L30168	1 Gal	1		0%	Open	Poor	No	0 Gal



# May Creek Inventory Report

ID	Container Size	QTY	Existing/Original Label	% Full	Sealed/ Open	Integrity	Leaking?	Estimated Amnt
L30169	1 Gal	1	Miller premium	0%	Open	Poor	No	0 Gal
L30170	1 Gal	1		0%	Open	Poor	No	0 Gal
L30171	1 Gal	1		0%	Open	Poor	No	0 Gal
L30172	1 Gal	1		0%	Open	Poor	Yes	0 Gal
L30173	1 Gal	1		0%	Open	Poor	No	0 Gal
L30174	1 Gal	1		0%	Open	Poor	No	0 Gal
L30175	1 Gal	1		0%	Open	Poor	No	0 Gal
L30176	1 Gal	1		0%	Open	Poor	No	0 Gal
L30177	1 Gal	1		0%	Open	Poor	No	0 Gal
L30178	1 Gal	1		0%	Open	Poor	No	0 Gal
L30179	1 Gal	1	Behr paint	0%	Open	Poor	No	0 Gal
L30180	1 Gal	1		0%	Open	Poor	No	0 Gal
L30181	1 Gal	1		0%	Open	Poor	No	0 Gal
L30182	1 Gal	1		0%	Open	Poor	No	0 Gal
L30183	1 Gal	1		0%	Open	Poor	No	0 Gal
L30184	1 Gal	1		0%	Open	Poor	No	0 Gal
L30185	1 Gal	1		0%	Open	Poor	No	0 Gal
L30186	1 Gal	1		0%	Open	Poor	No	0 Gal
L30187	1 Gal	1		0%	Open	Poor	No	0 Gal
L30188	1 Gal	1	Acrinamel Miller paint	0%	Open	Poor	No	0 Gal



# May Creek Inventory Report

ID	Container Size	QTY	Existing/Original Label	% Full	Sealed/ Open	Integrity	Leaking?	Estimated Amnt
L30189	1 Gal	1		0%	Open	Poor	No	0 Gal
L30190	1 Gal	1		0%	Open	Poor	No	0 Gal
L30191	1 Gal	1		0%	Open	Poor	No	0 Gal
L30192	1 Gal	1		0%	Open	Poor	No	0 Gal
L30193	1 Gal	1		0%	Open	Poor	No	0 Gal
L30194	1 Gal	1	Miller Acri-Lite	0%	Open	Poor	Yes	0 Gal
L30195	1 Gal	1		0%	Open	Poor	No	0 Gal
L30196	1 Gal	1		0%	Open	Poor	Yes	0 Gal
L30197	1 Gal	1		0%	Open	Poor	No	0 Gal
L30198	1 Gal	1		0%	Open	Poor	No	0 Gal
L30199	1 Gal	1		0%	Open	Poor	Yes	0 Gal
L30200	1 Gal	1		0%	Open	Poor	No	0 Gal
L30201	1 Gal	1		0%	Open	Poor	No	0 Gal
L30202	1 Gal	1		0%	Open	Poor	No	0 Gal
L30203	1 Gal	1		0%	Open	Poor	No	0 Gal
L30204	1 Gal	1		0%	Open	Poor	No	0 Gal
L30205	1 Gal	1		0%	Open	Poor	No	0 Gal
L30206	1 Gal	1	Miller premium	0%	Open	Poor	No	0 Gal
L30207	1 Gal	1		0%	Open	Poor	No	0 Gal
L30208	1 Gal	1		0%	Open	Poor	No	0 Gal



# May Creek Inventory Report

ID	Container Size	QTY	Existing/Original Label	% Full	Sealed/ Open	Integrity	Leaking?	Estimated Amnt
L30209	1 Gal	1		0%	Open	Poor	No	0 Gal
L30210	1 Gal	1	Satin finish	0%	Open	Poor	No	0 Gal
L30211	1 Gal	1		0%	Open	Poor	No	0 Gal
L30212	1 Gal	1		0%	Open	Poor	No	0 Gal
L30213	1 Gal	1		0%	Open	Poor	No	0 Gal
L30214	1 Gal	1		0%	Open	Poor	No	0 Gal
L30215	1 Gal	1		0%	Open	Poor	No	0 Gal
L30216	1 Gal	1	Miller paint	0%	Open	Poor	No	0 Gal
L30217	1 Gal	1		0%	Open	Poor	No	0 Gal
L30218	1 Gal	1		0%	Open	Poor	No	0 Gal
L30219	1 Gal	1		0%	Open	Poor	Yes	0 Gal
L30220	1 Gal	1		0%	Open	Poor	Yes	0 Gal
L30221	1 Gal	1		0%	Open	Poor	No	0 Gal
L30222	1 Gal	1	Wood stain	0%	Open	Poor	No	0 Gal
L30223	1 Gal	1		0%	Open	Poor	No	0 Gal
L30224	1 Gal	1		0%	Open	Poor	No	0 Gal
L30225	1 Gal	1		0%	Open	Poor	Yes	0 Gal
L30226	1 Gal	1		0%	Open	Poor	No	0 Gal
L30227	1 Gal	1		0%	Open	Poor	No	0 Gal
L30228	1 Gal	1		0%	Open	Poor	No	0 Gal



# May Creek Inventory Report

ID	Container Size	QTY	Existing/Original Label	% Full	Sealed/ Open	Integrity	Leaking?	Estimated Amnt
L30229	1 Gal	1		0%	Open	Poor	No	0 Gal
L30230	1 Gal	1		0%	Open	Poor	No	0 Gal
L30231	1 Gal	1		0%	Open	Poor	No	0 Gal
L30232	1 Gal	1		0%	Open	Poor	No	0 Gal
L30233	1 Gal	1		0%	Open	Poor	No	0 Gal
L30234	1 Gal	1		0%	Open	Poor	No	0 Gal
L30235	1 Gal	1		0%	Open	Poor	Yes	0 Gal
L30236	1 Gal	1		0%	Open	Poor	No	0 Gal
L30237	1 Gal	1		0%	Open	Poor	No	0 Gal
L30238	1 Gal	1		0%	Open	Poor	No	0 Gal
L30239	1 Gal	1	Acrylic	0%	Open	Poor	No	0 Gal
L30240	1 Gal	1	Acrylic	0%	Open	Poor	No	0 Gal
L30241	1 Gal	1		0%	Open	Poor	No	0 Gal
L30242	1 Gal	1	Acrylic	0%	Open	Poor	No	0 Gal
L30243	1 Gal	1		0%	Open	Poor	No	0 Gal
L30244	1 Gal	1		0%	Open	Poor	No	0 Gal
L30245	1 Gal	1		0%	Open	Poor	No	0 Gal
L30246	1 Gal	1		0%	Open	Poor	No	0 Gal
L30247	1 Gal	1		0%	Open	Poor	No	0 Gal
L30248	1 Gal	1	Acrylic	0%	Open	Poor	No	0 Gal





# May Creek Inventory Report

ID	Container Size	QTY	Existing/Original Label	% Full	Sealed/ Open	Integrity	Leaking?	Estimated Amnt
L30249	1 Gal	1	Latex	0%	Open	Poor	No	0 Gal
L30250	1 Gal	1		0%	Open	Poor	No	0 Gal
L30251	1 Gal	1		0%	Open	Poor	No	0 Gal
L30252	1 Gal	1		0%	Open	Poor	No	0 Gal
L30253	1 Gal	1		0%	Open	Poor	No	0 Gal
L30254	1 Gal	1		0%	Open	Poor	No	0 Gal
L30255	1 Gal	1		0%	Open	Poor	No	0 Gal
L30256	1 Gal	1	Latex	0%	Open	Poor	No	0 Gal
L30257	1 Gal	1	Acro Latex	0%	Open	Poor	No	0 Gal
L30258	1 Gal	1		0%	Open	Poor	No	0 Gal
L30259	1 Gal	1		0%	Open	Poor	No	0 Gal
L30260	1 Gal	1		0%	Open	Poor	No	0 Gal
L30261	1 Gal	1		0%	Open	Poor	No	0 Gal
L30262	1 Gal	1		0%	Open	Poor	No	0 Gal
L30263	1 Gal	1		0%	Open	Poor	No	0 Gal
L30264	1 Gal	1		0%	Open	Poor	No	0 Gal
L30265	1 Gal	1	Acrylic	0%	Open	Poor	No	0 Gal
L30266	1 Gal	1	Acrylic	0%	Open	Poor	Yes	0 Gal
L30267	1 Gal	1		0%	Open	Poor	No	0 Gal
L30268	1 Gal	1		0%	Open	Poor	No	0 Gal



# May Creek Inventory Report

ID	Container Size	QTY	Existing/Original Label	% Full	Sealed/ Open	Integrity	Leaking?	Estimated Amnt
L30269	1 Gal	1		0%	Open	Poor	Yes	0 Gal
L30270	1 Gal	1		0%	Open	Poor	No	0 Gal
L30271	1 Gal	1		0%	Open	Poor	No	0 Gal
L30272	1 Gal	1		0%	Open	Poor	No	0 Gal
L30273	1 Gal	1		0%	Open	Poor	No	0 Gal
L30274	1 Gal	1		0%	Open	Poor	No	0 Gal
L30275	1 Gal	1		0%	Open	Poor	No	0 Gal
L30276	1 Gal	1		0%	Open	Poor	No	0 Gal
L30277	1 Gal	1	Acrylic	0%	Open	Poor	No	0 Gal
L30278	1 Gal	1		0%	Open	Poor	No	0 Gal
L30279	1 Gal	1		0%	Open	Poor	No	0 Gal
L30280	1 Gal	1	Acrylic	0%	Open	Poor	No	0 Gal
L30281	1 Gal	1	Acrylic	0%	Open	Poor	Yes	0 Gal
L30282	1 Gal	1	Acrylic	0%	Open	Poor	Yes	0 Gal
L30283	1 Gal	1		0%	Open	Poor	Yes	0 Gal
L30284	1 Gal	1		0%	Open	Poor	No	0 Gal
L30285	1 Gal	1	Oil based	0%	Open	Poor	No	0 Gal
L30286	1 Gal	1		0%	Open	Poor	No	0 Gal
L30287	1 Gal	1		0%	Open	Poor	No	0 Gal
L30288	1 Gal	1		0%	Open	Poor	No	0 Gal



# May Creek Inventory Report

ID	Container Size	QTY	Existing/Original Label	% Full	Sealed/ Open	Integrity	Leaking?	Estimated Amnt
L30289	1 Gal	1	Acrylic	0%	Open	Poor	No	0 Gal
L30290	1 Gal	1	Acrylic	0%	Open	Poor	No	0 Gal
L30291	1 Gal	1	Latex	0%	Open	Poor	No	0 Gal
L30292	1 Gal	1		0%	Open	Poor	No	0 Gal
L30293	1 Gal	1		0%	Open	Poor	No	0 Gal
L30294	1 Gal	1		0%	Open	Poor	No	0 Gal
L30295	1 Gal	1		0%	Open	Poor	No	0 Gal
L30296	1 Gal	1	Acrylic	0%	Open	Poor	No	0 Gal
L30297	1 Gal	1	Latex	0%	Open	Poor	No	0 Gal
L30298	1 Gal	1		0%	Open	Poor	Yes	0 Gal
L30299	1 Gal	1		0%	Open	Poor	No	0 Gal
L30300	1 Gal	1		0%	Open	Poor	Yes	0 Gal
L30301	1 Gal	1	Latex	0%	Open	Poor	No	0 Gal
L30302	1 Gal	1		0%	Open	Poor	No	0 Gal
L30303	1 Gal	1	Acrylic	0%	Open	Poor	No	0 Gal
L30304	1 Gal	1		0%	Open	Poor	No	0 Gal
L30305	1 Gal	1		0%	Open	Poor	No	0 Gal
L30306	1 Gal	1	Label states it contains oil	0%	Open	Poor	No	0 Gal
L30307	1 Gal	1	Latex	0%	Open	Poor	No	0 Gal
L30308	1 Gal	1		0%	Open	Poor	No	0 Gal



# May Creek Inventory Report

ID	Container Size	QTY	Existing/Original Label	% Full	Sealed/ Open	Integrity	Leaking?	Estimated Amnt
L30309	1 Gal	1		0%	Open	Poor	No	0 Gal
L30310	1 Gal	1		0%	Open	Poor	No	0 Gal
L30311	1 Gal	1		0%	Open	Poor	No	0 Gal
L30312	1 Gal	1		0%	Open	Poor	No	0 Gal
L30313	1 Gal	1	Acrinamel	0%	Open	Poor	No	0 Gal
L30314	1 Gal	1	Acrinamel	0%	Open	Poor	No	0 Gal
L30315	1 Gal	1		0%	Open	Poor	No	0 Gal
L30316	1 Gal	1		0%	Open	Poor	No	0 Gal
L30317	1 Gal	1		0%	Open	Poor	No	0 Gal
L30318	1 Gal	1		0%	Open	Poor	No	0 Gal
L30319	1 Gal	1		0%	Open	Poor	No	0 Gal
L30321	1 Gal	1		0%	Open	Poor	No	0 Gal
L30322	1 Gal	1	Acrylic	0%	Open	Poor	No	0 Gal
L30323	1 Gal	1	Acrylic	0%	Open	Poor	No	0 Gal
L30324	1 Gal	1		0%	Open	Poor	No	0 Gal
L30325	1 Gal	1		0%	Open	Poor	Yes	0 Gal
L30326	1 Gal	1		0%	Open	Poor	No	0 Gal
L30327	1 Gal	1		0%	Open	Poor	No	0 Gal
L30328	1 Gal	1		0%	Open	Poor	Yes	0 Gal
L30330	1 Gal	1		0%	Open	Poor	No	0 Gal



# May Creek Inventory Report

ID	Container Size	QTY	Existing/Original Label	% Full	Sealed/ Open	Integrity	Leaking?	Estimated Amnt
L30331	1 Gal	1		0%	Open	Poor	No	0 Gal
L30334	1 Gal	1		0%	Open	Poor	No	0 Gal
L30337	1 Gal	1	Latex	0%	Open	Poor	No	0 Gal
L30339	1 Gal	1		0%	Open	Poor	No	0 Gal
L30341	1 Gal	1		0%	Open	Poor	Yes	0 Gal
L30342	1 Gal	1	Latex	0%	Open	Poor	No	0 Gal
L30343	1 Gal	1		0%	Open	Poor	No	0 Gal
L30344	1 Gal	1		0%	Open	Poor	No	0 Gal
L30345	1 Gal	1	Latex	0%	Open	Poor	No	0 Gal
L30346	1 Gal	1	Acrylic Latex	0%	Open	Poor	No	0 Gal
L30347	1 Gal	1		0%	Open	Poor	No	0 Gal
L30348	1 Gal	1	Acrylic	0%	Open	Poor	No	0 Gal
L30349	1 Gal	1		0%	Open	Poor	No	0 Gal
L30350	1 Gal	1		0%	Open	Poor	No	0 Gal
L30351	1 Gal	1	Acrylic	0%	Open	Poor	No	0 Gal
L30352	1 Gal	1	Acrylic	0%	Open	Poor	No	0 Gal
L30356	1 Gal	1		0%	Open	Poor	No	0 Gal
L30357	1 Gal	1		0%	Open	Poor	No	0 Gal
L30358	1 Gal	1		0%	Open	Poor	Yes	0 Gal
L30359	1 Gal	1	Acrylic	0%	Open	Poor	No	0 Gal



# May Creek Inventory Report

ID	Container Size	QTY	Existing/Original Label	% Full	Sealed/ Open	Integrity	Leaking?	Estimated Amnt
L30360	1 Quart	1	Woodstain	0%	Open	Poor	No	0 Quart
L30361	1 Gal	1	All purpose compound	0%	Open	Poor	No	0 Gal
L30365	1 Gal	1		10%	Open	Poor	No	0.1 Gal
L30366	5 Gal	1		0%	Open	Poor	Yes	0 Gal
L30367	5 Gal	1		0%	Open	Poor	No	0 Gal
L30368	5 Gal	1		0%	Open	Poor	No	0 Gal
L30369	5 Gal	1		0%	Open	Poor	Yes	0 Gal
L30370	5 Gal	1		0%	Open	Poor	Yes	0 Gal
L30371	5 Gal	1		0%	Open	Poor	Yes	0 Gal
L30372	2.5 Gal	1	Gasoline	0%	Open	Poor	Yes	0 Gal
L30373	2.5 Gal	1	Gasoline	0%	Open	Poor	Yes	0 Gal
L30374	1 Gal	1	Kerosene	25%	Open	Poor	No	0.25 Gal
L30378	20 Gal	1		0%	Open	Poor	Yes	0 Gal
L30384	5 Gal	1		0%	Open	Poor	Yes	0 Gal
L30387	5 Gal	1	Jungle juice bloom	0%	Open	Poor	No	0 Gal
L30388	5 Gal	1		100%	Open	Poor	No	5 Gal
L30391	5 Gal	8		0%	Open	Poor	Yes	0 Gal
L30392	1 Gal	2	Gasoline	0%	Open	Poor	Yes	0 Gal
L30393	10 Gal	4		0%	Open	Poor	Yes	0 Gal
L30394	1 Gal	9		0%	Open	Poor	Yes	0 Gal



# May Creek Inventory Report

ID	Container Size	QTY	Existing/Original Label	% Full	Sealed/ Open	Integrity	Leaking?	Estimated Amnt
L40003	16 oz.	1	Nu finish the once a year car polish	0%	Open	Poor	No	0 oz.
L40005	1 Quart	1		10%	Open	Poor	Yes	0.1 Quart
L40006	1 Quart	1	Chevron Delo 400 SDE 15w-40	1%	Open	Poor	No	0.01 Quart
L40008	2 Gal	1		1%	Open	Poor	No	0.02 Gal
L40009	1 Gal	1	Behr premium paint on lid	0%	Open	Poor	Yes	0 Gal
L40010	2 Gal	1	Kilz 2 latex water based primer sealer and stain	0%	Open	Poor	No	0 Gal
L40012	1 Gal	1	Behr paint on lid	0%	Open	Poor	Yes	0 Gal
L40013	1 Gal	1	Behr premium paint on lid	0%	Open	Poor	Yes	0 Gal
L50001	5 Gal	3	Gasoline	0%	Various	Poor	No	0 Gal
L50002	1 Gal	13		0%	Various	Poor	Yes	0 Gal
L50007	55 Gal	1		0%	Open	Poor	Yes	0 Gal
L50009	55 Gal	1		0%	Open	Poor	Yes	0 Gal
L50010	200 Gal	3		0%	Open	Poor	Yes	0 Gal
L60002	1 Gal	1		0%	Open	Poor	No	0 Gal
L60003	1 Gal	1		0%	Open	Poor	No	0 Gal
L60004	1 Gal	1		0%	Open	Poor	No	0 Gal
L60005	1 Gal	1		0%	Open	Poor	No	0 Gal
L60006	1 Gal	1		0%	Open	Poor	No	0 Gal
L60007	1 Gal	1		0%	Open	Poor	No	0 Gal
L60008	1 Gal	1		0%	Open	Poor	No	0 Gal



# May Creek Inventory Report

ID	Container Size	QTY	Existing/Original Label	% Full	Sealed/ Open	Integrity	Leaking?	Estimated Amnt
L60011	1 Gal	1	Rusted out on side	0%	Open	Poor	Yes	0 Gal
L60012	1 Quart	1	Glidden	0%	Open	Poor	No	0 Quart
L60013	1 Quart	1	Marine silicone sealant	0%	Open	Poor	No	0 Quart
L60014	5 Gal	1	Prego plug	0%	Open	Poor	No	0 Gal
L60015	5 Gal	1		0%	Open	Poor	Yes	0 Gal
L60016	5 Gal	1	Joint compound	0%	Open	Poor	No	0 Gal
L60019	100 Gal	1		0%	Open	Poor	Yes	0 Gal
L60021	100 Gal			0%	Open	Poor	Yes	0 Gal
L60022	5 Gal	1	HML 5000 Cold applied liquid water	99%	Open	Poor	Yes	4.95 Gal
L60023	5 Gal	12	Gasoline	0.1%	Open	Poor	Yes	0.005 Gal
L60027	100 Gal	1		0%	Open	Poor	Yes	0 Gal
L60028	45 Gal	1		0%	Open	Poor	Yes	0 Gal
L60030	5 Gal	40		0%	Open	Poor	Yes	0 Gal
L60031	1 Gal	20		0%	Open	Poor	Yes	0 Gal
L60032	30 Gal	9		0%	Open	Poor	Yes	0 Gal
L60037	1000 Gal	1		0%	Open	Poor	Yes	0 Gal
L60038	300 Gal	1		0%	Open	Poor	Yes	0 Gal
L60039	500 Gal	1		0%	Open	Poor	No	0 Gal
W10009	1 Gal	1	Cleaning detergent	0%	Open	Poor	No	0 Gal
W10015	5 Gal	1	No marking	75%	Open	Poor	No	3.75 Gal





# May Creek Inventory Report

ID	Container Size	QTY	Existing/Original Label	% Full	Sealed/ Open	Integrity	Leaking?	Estimated Amnt
W10021	5 Gal	1	No marking	10%	Open	Poor	No	0.5 Gal
W10023	5 Gal	1	No marking	10%	Open	Poor	No	0.5 Gal
W10024	10 Gal	1	No marking	0%	Open	Poor	No	0 Gal
W10028	1 Gal	1	No marking	10%	Open	Poor	No	0.1 Gal
W10029	2 Quart	1	No marking	0%	Open	Poor	No	0 Quart
W10032	55 Gal	1	No marking	25%	Open	Poor	No	13.75 Gal
W10034	13 Bulbs	1	No marking	0%	Open	Poor	No	0 Bulbs
W20001	55 Gal	1		75%	Open	Poor	Yes	41.25 Gal
W20002	55 Gal	1		100%	Open	Poor	Yes	55 Gal
W20003	55 Gal	1		100%	Open	Poor	Yes	55 Gal
W20004	55 Gal	1	Coolant and antifreeze	100%	Open	Poor	Yes	55 Gal
W20006	110 Gal	1	No marking	10%	Open	Poor	No	11 Gal
W20008	110 Gal	1	No marking	0%	Open	Poor	No	0 Gal
W20009	100 Gal	1	No marking	25%	Open	Poor	No	25 Gal
W20010	100 Gal	1	No marking	10%	Open	Poor	No	10 Gal
W20011	5 Gal	5	No marking	10%	Open	Poor	No	0.5 Gal
W20013	2 Gal	1	No marking	0%	Open	Poor	No	0 Gal
W20014	2 Gal	1	No marking	90%	Open	Poor	No	1.8 Gal
W20015	100 Gal	1	No marking	10%	Open	Poor	No	10 Gal
W20016	1 Gal	1	No marking	25%	Open	Poor	No	0.25 Gal



# May Creek Inventory Report

ID	Container Size	QTY	Existing/Original Label	% Full	Sealed/ Open	Integrity	Leaking?	Estimated Amnt
W20017	1 L	1	Gasoline	10%	Open	Poor	No	0.1 L
W20025	1 Gal	29	Paint	0%	Open	Poor	No	0 Gal
W20030	1 Ballast	9	No marking, ballast	0%	Open	Poor	No	0 Ballast

**1036 containers in Hazard Subclass 9 – Miscellaneous Hazardous Materials**

**1659 total containers found on site**

# **Appendix F**

## **Landfill Test Pit Logs**

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May Creek Landfill Test Pit Summary				
Test Pit	Location	Depth to native soil (ft. bgs)	Seeping sidewalls	Analytical Sample
TP01	L4	20.0	No	18111105
TP02	L4	24.0	Yes	18111106
TP03	L2	16.5	Yes	18111107
TP04	L2	25.0	No	18111108
TP05	L3	1.5	No	18111110
TP06	L6	15.0	No	18111111
TP07	L5	13.0	No	18111112
TP08	L1	11.5	Yes	18111113

<b>Date</b>	11/27/2018
<b>Excavation Start Time</b>	8:30
<b>Location</b>	Northwestern edge of L4
<b>Test Pit</b>	TP01
<b>Final Depth</b>	20 ft. bgs
<b>Depth of sample</b>	20 ft. bgs
<b>Sample Name</b>	TP01-L4
<b>Sample Time</b>	9:20

<b>Depth (ft.)</b>	<b>excavation description</b>
0 - 3'	Landfill, steaming
3 - 6'	Clay-rich fill soil.
6 - 8'	Tire, electrical wire, burlap, wood debris.
8 - 9'	Railroad tie, heavy steam.
9 - 11'	Wood, clothes, plywood.
11 - 12'	Slash wood, fill soil, electrical wire, railroad tie. Steam.
12 - 13.5'	Wood, some soil, plastic sheeting.
13.5 - 15'	Wood slash, brown sandy soil, plastics, tire.
15 - 16'	Wood, soil, plastic bucket.
16 - 20'	Wood and some soil. At 20 ft. is a color change to blueish gray Silt with no trash. Light blueish-gray clay appears to be top of in-situ native soil.
20 - 24'	Light blueish-gray Silt as above. No trash.

<b>Sample USCS</b>	ML - Silt with sand
<b>Sample Description</b>	Light gray Silt with sand and trace gravel. Silt is low to very low plasticity, Sand is very fine, trace gravel is 1 to 4 cm surrounded, greenish, very strong, possibly metamorphic.

<b>Date</b>	11/27/2018
<b>Excavation Start Time</b>	10:30
<b>Location</b>	Eastern edge of landfill pile in L4
<b>Test Pit</b>	TP02
<b>Final Depth</b>	24 ft. bgs
<b>Depth of sample</b>	24 ft. bgs
<b>Sample Name</b>	TP02-L4
<b>Sample Time</b>	11:15

<b>Depth (ft.)</b>	<b>excavation description</b>
0 - 4'	Wood, concrete chunks, one trailer hitch and axle assembly, plastics. Organic odor and steam.
4 - 6'	Wood and debris, no visible soil.
6 - 11'	Woody debris.
11 - 13.5'	Woody debris, organics material, and plastic.
13.5 - 16'	Same as above.
16 - 20'	Woody debris, bark chips, wood branches. No plastic or metal noted, steaming.
20 - 23'	Wood and organics, few gray Silt mixed in. Some roofing tiles observed.
23 - 24'	Same as above.
24 - 26'	Light gray Silt.

<b>Sample USCS</b>	ML - Silt with sand
<b>Sample Description</b>	Light brown 8 to 10 in. thick soil A horizon, above light greenish gray Silt with abundant fine sand, and trace gravel. Trace gravel is subround. Soil is firm and structure suggests compaction. One 30 cm boulder of green medium grained sandstone, appears to be a greensand (glaucconitic sandstone).
<b>Excavation Notes</b>	Observed slow seeping along the north wall of the excavation, and a slight drip on the west wall. Raining during excavation, no ponded water observed at land surface.

<b>Date</b>	11/27/2018
<b>Excavation Start Time</b>	13:45
<b>Location</b>	L2, on western side of plateau
<b>Test Pit</b>	TP03
<b>Final Depth</b>	16.5 ft. bgs
<b>Depth of sample</b>	16.5 ft. bgs
<b>Sample Name</b>	TP03-L2
<b>Sample Time</b>	14:00

<b>Depth (ft.)</b>	<b>excavation description</b>
0 - 6'	Wood, organic debris, and wood chips. Some plastic, concrete, and brick. Dimensional lumber (some painted) at 2 ft. in sidewall.
6- 7'	Plastic sheeting,
7 - 10'	Organic woody debris and lumber with some plastic. At 8 ft. some soil appears to be mixed in with organic content. No steam generation noted.
10 - 12'	Woody debris as above with some root balls, no lumber. Wood chips.
12 - 14'	Same as above.
14 - 16'	Same as above, no steam or odors noted. Some metal noted in sidewall at 14 ft.
16.5'	In-situ native soil encountered.

<b>Sample USCS</b>	ML - Silt with sand
<b>Sample Description</b>	Light brown to light gray Silt with abundant fine sand, no plasticity. Moist.
<b>Excavation Notes</b>	Some wetness observed in south sidewall of pit at 4 ft. bgs. Appears to be some char and soil mixed in at same 4 ft. location in sidewall.



<b>Date</b>	11/27/2018
<b>Excavation Start Time</b>	15:15
<b>Location</b>	L2, near east end of plateau
<b>Test Pit</b>	TP04
<b>Final Depth</b>	26 ft. bgs
<b>Depth of sample</b>	25 ft. bgs
<b>Sample Name</b>	TP04-L2
<b>Sample Time</b>	16:10

<b>Depth (ft.)</b>	<b>excavation description</b>
0 - 4'	Woody debris: plywood, planks, dimensional lumber, and roots.
4 - 6'	Same as above, some branches. Test pit is now steaming.
6 - 8'	Woody debris as above with some soil mixed in. Painted lumber and trace plastic observed. No odor, FID 50 ppm.
8 - 10'	Same as above. Increased steam with FID reading of 80 ppm in working area. Temporary spike of FID to 242 ppm in steam plume. Non-descript odor present.
10 - 12'	Woody debris as above with a plastic sheet observed.
12 - 14'	Blackened woody debris and soil, with some plastics that are also black. Trace char on sticks of wood. FID of 10 ppm. Some odor as above.
14 - 16'	Same as above, with some plastics.
16 - 18'	Woody debris as above, with soil. Some plastic sheeting and aluminum sheeting. Less odor.
18 - 20'	Steaming woody debris. Woody debris is now abundant blackened wood chips with some small to large timber slash. Trace metal debris as long bands of metal. One roofing tile observed.
20 - 21'	Woody debris as above including large timbers.
21 - 23'	Same as above.
23 - 24'	Dark brown soil with some woody debris. Some logs.
24 - 25'	Woody debris and dark brown silty Sand.
25' - 26'	In-situ native soil. Light brown soil A-horizon is approximately 8 in. thick with light gray silty Sand with gravel below. Sand is very fine, gravel is round, 4-10 cm igneous clasts. Soil is slightly compacted, firm, appears to be Vashon Advance Outwash.

<b>Sample USCS</b>	SM - silty Sand with gravel
<b>Sample Description</b>	Light gray to light brown silty Sand with gravel as described in 25 - 26' ft. depth above.
<b>Excavation Notes</b>	FID readings from TVA.

<b>Date</b>	11/28/2018
<b>Excavation Start Time</b>	8:05
<b>Location</b>	L3, near ditch on western edge of property
<b>Test Pit</b>	TP05
<b>Final Depth</b>	4 ft. bgs
<b>Depth of sample</b>	1.5 ft. bgs
<b>Sample Name</b>	TP05-L3
<b>Sample Time</b>	8:20

<b>Depth (ft.)</b>	<b>excavation description</b>
0 - 1'	Concrete rubble and dark brown organic-rich soil.
1 - 4'	Light brown to tan silty Sand with gravel. Sand is very fine to fine grained, loose to moderately dense. Gravel is coarse to 5 cm, rounded igneous and sedimentary. Native soil has greater sand content and lighter color than previous test pits but appears to be in-situ. No FID hits, no steam, no odors.

<b>Sample USCS</b>	SM - silty Sand with gravel
<b>Sample Description</b>	tan to light brownish-gray with green mottling, silty Sand with gravel. Sand is very fine to fine grained, loose to moderately dense. Gravel is coarse to 5 cm, rounded igneous and sedimentary.
<b>Excavation Notes</b>	Moved excavation to adjacent ground from initial test pit location for sample collection.

<b>Date</b>	11/28/2018
<b>Excavation Start Time</b>	8:57
<b>Location</b>	L6, north end of refuse pile.
<b>Test Pit</b>	TP06
<b>Final Depth</b>	16 ft. bgs
<b>Depth of sample</b>	15 ft. bgs
<b>Sample Name</b>	TP06-L6
<b>Sample Time</b>	9:20

<b>Depth (ft.)</b>	<b>excavation description</b>
0 - 1'	Trash. Computer parts, metal scrap, wheels, plastic, and auto body scrap sections.
1 - 2'	Plastic tarps, plywood
2 - 4'	Woody debris with abundant plastic. Hose lengths, timber slash, and plywood.
4 - 6'	Woody debris with soil. Dark brown. Starting to steam, thermal imaging camera shows 70
6 - 8'	Same as above, some logs and carpet.
8 - 10'	Dark grayish brown sandy soil with gravel. Abundant woody debris, some plastics. Test pit is now steaming.
10 - 12'	Same as above with many plastic sheets. One electrical wire.
12 - 14'	Woody debris and silty Sand with gravel. Sand is dark blueish gray where silt content is higher, woody debris is dark brown. Scrap metal, logs, plastic sheeting present. No FID hits, 70° F temp in sidewall, light steam. Light gray silty Sand mixed in.
14 - 16'	Dark brown woody debris. Roots, organics, chips, abundant glass. Possibly some fine grained sand and very dark brown silt mixed in. One broken kitchen carving knife tip noted. Trace to few metal and plastic debris throughout interval, some sticks.
16'	Native in-situ soil. Light greenish gray to olive Silt with sand and gravel. Abundant sand is very fine. Silty has no plasticity, moist, soft. Gravel is 1 cm to cobbles, rounded, igneous. Mottling exists near in-situ soil horizon, appears to have a light brown A Horizon, but difficult to discern as vertical mixing with woody debris has made the ins-situ vs. landfill horizon indistinct. Within mixed light brown soil/woody debris is occasional blackened soil. Due to indistinct nature of horizon with an apparent vertical mixing zone of 12 inches, sample is collected from top of olive-colored Silt rather than potential A Horizon. Temperature 68° F in sidewall, No FID hits.

<b>Sample USCS</b>	ML - Silt with sand and gravel.
<b>Sample Description</b>	Light greenish gray to olive Silt with sand and gravel. Abundant sand is very fine. Silty has no plasticity, moist, soft. Gravel is 1 cm to cobbles, rounded, igneous.
<b>Excavation Notes</b>	Depth log based off of excavator arm depth markings, final sample depth measured with tape.

<b>Date</b>	11/28/2018
<b>Excavation Start Time</b>	11:00
<b>Location</b>	L5, at corner in road at pile of glass "gravel"
<b>Test Pit</b>	TP07
<b>Final Depth</b>	13 ft. bgs
<b>Depth of sample</b>	13 ft. bgs
<b>Sample Name</b>	TP07-L5
<b>Sample Time</b>	11:18

<b>Depth (ft.)</b>	<b>excavation description</b>
0 - 1'	Glass shards, sandy soil.
1 - 2'	Concrete rubble, carpet, cloth, branches
2 - 4'	Dark brown woody debris. Branches, dimensional lumber, some silt.
4 - 6'	Newspaper stacks, carpet, concrete rubble, woody debris.
6 - 8'	Same as above, with more concrete. Some particle board.
8 - 10'	Woody debris, roots, glass bottles, plastic, sticks.
10 - 12'	Same as above, with timbers, plastic. No steam, odors, or FID hits.
12 - 13'	Strong decomposing odor. 62° F in sidewall. Woody debris with possible silt. Moist, minimal steam. FID 33 ppm.
13.0 - 13.2'	Light brownish gray silty Sand with gravel. Sand is very fine to medium grained, gravel is coarse to 2 cm, subround. Moist, loose, no organics. Occasional rusty mottling.
13.2'	Similar to above, but compacted to firm with more silt, olive, and gravel is coarse to 5 cm, rounded.

<b>Sample USCS</b>	SM - silty Sand with gravel
<b>Sample Description</b>	Light brownish gray silty Sand with gravel. Sand is very fine to medium grained, gravel is coarse to 2 cm, subround. Moist, loose, no organics. Occasional rusty mottling.
<b>Excavation Notes</b>	Moved vehicles and scrap metal obscured by blackberry brambles to reach ground surface. A significant number of propane tanks and some fuel tanks discovered at this location in the process of locating ground surface.

<b>Date</b>	11/28/2018
<b>Excavation Start Time</b>	13:30
<b>Location</b>	L1
<b>Test Pit</b>	TP08
<b>Final Depth</b>	13 ft. bgs
<b>Depth of sample</b>	11.5 ft. bgs
<b>Sample Name</b>	TP08-L1
<b>Sample Time</b>	13:50

<b>Depth (ft.)</b>	<b>excavation description</b>
0 - 1'	Plants, organic-rich soil, and a blue plastic tarp.
1 - 2'	Plywood and branches.
2 - 4'	Tires with wheels, scrap metal, plastic buckets, and metal and plastic pipes mixed with woody debris.
4 - 6'	Woody debris, timber slash, lumber, and plastic. One tire innertube observed.
6 - 8'	Woody debris with plywood and small bits of plastic, some very dark gray to very dark brown. Silt and sand mixed in with woody debris. Includes door mat, timber slash, and scrap metal.
8 - 10'	Same as above, with two plastic juice bottles observed.
10 - 12'	Woody debris with some silt, wet. One large chunk of concrete and white plastic jug observed. Upon inspection, white plastic jug is an empty, punctured container of "Aqua-Trete" for "concrete and masonry" manufactured by Chemtrec. Container original gross weight is 43 lbs.
12 - 12.5'	Same as above, with one piece of Styrofoam and one asphalt tile. Water encountered. Slop in bucket with significant seeping (on the order of several gallons per minute) observed on western, upgradient wall from what appears to be the woody debris / in-situ native soil interface. Sidewall sloughing and slow pooling of water in pit bottom is occurring. After a few moments the eastern sidewall began seeping at a greater rate than the western sidewall.
12.5 - 13'	In-situ native soil beginning at approximately 12.5 ft. is fully saturated Silt with sand and trace gravel. Silt has no plasticity, sand is very fine to fine grained, trace gravel is coarse to 5 cm.

<b>Sample USCS</b>	ML - Silt with sand and gravel
<b>Sample Description</b>	Wet Silt with sand and trace gravel. Silt has no plasticity, sand is very fine to fine grained, trace gravel is coarse to 5 cm.
<b>Excavation Notes</b>	Depth log based off of excavator arm depth markings, final depth to top of in-situ soil measured with tape.

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# **Appendix G**

## **Geologic Borehole Logs**

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Monitoring Well Construction Summary May Creek Landfill 15753 SE Renton Issaquah Rd Renton, WA													
Monitoring Well	Borehole ID	Drilling and Monitoring well Installation	Total Borehole Depth (ft)	Riser Interval (ft bgs)	Surface Seal Interval (ft bgs)	Screened Interval (ft bgs)	Filter Pack Interval (ft bgs)	Sump Interval (ft bgs)	Latitude	Longitude	Measured Well Depth (ft BTOIC)	Surveyed Well Elevation TOIC <sup>1</sup>	Surveyed Ground Surface Elevation <sup>1</sup>
MW-01	BH-A	7/9/2019	19	+2.5 - 7	1.5 - 5	7 - 17	5 - 19	17 - 18	47.50194472	-122.1327708	20.12	468.08	465.81
MW-02	BH-C	7/10/2019	18.5	+2.5 - 7	0.5 - 5	7 - 17	5 - 18.5	17 - 18	47.50098722	-122.1318725	20.4	469.92	467.27
MW-03	BH-B	7/11/2019	31	+2.5 - 18	0.5 - 14.5	18 - 28	14.5 - 29	28 - 29	47.50098306	-122.1309667	31.5	457.00	454.36
MW-04	BH-D	7/11/2019	21	+2.5 - 10	1 - 8	10 - 20	8 - 21	20 - 21	47.50144667	-122.1305925	23.28	437.87	435.68
MW-05	BH-F	7/12/2019	21	+2.5 - 10	0.5 - 9	10 - 20	9 - 21	20 - 21	47.50174528	-122.1306881	23.17	434.20	431.39
MW-06	BH-E	7/12/2019 - 7/13/2019	24.75	+2.5 - 13.75	0.5 - 12	13.75 - 23.75	12 - 24.75	23.75 - 24.75	47.50223611	-122.1303089	26.71	398.23	395.34
MW-07	BH-G	7/13/2019	17	+2.5 - 6	0.5 - 8	6 - 16	5 - 17	16 - 17	47.50185611	-122.1311367	19.21	446.14	443.56

Notes:

1 - NAVD88 Elevation in Feet  
All borings drilled Holt Services utilizing a Mobile B58 hollow stem auger with a 6 inch auger bit.  
All monitoring wells constructed with 2.0 inch PVC casing, 10-foot 0.010 inch slotted screen, and 1 foot sump.  
For all monitoring wells, the surface seal consists of bentonite chips and/or bentonite pellets. The filter pack consists of 12-10 CSS.

Key:

- bgs = Below Ground Surface
- BTOIC = Below Top of Inner Casing
- ft = Feet
- ID = Identification
- PVC = Polyvinyl chloride
- TOIC = Top of Inner Casing
- CSS = Colorado Silica Sand



## Monitoring Well: BH-A/MW-01

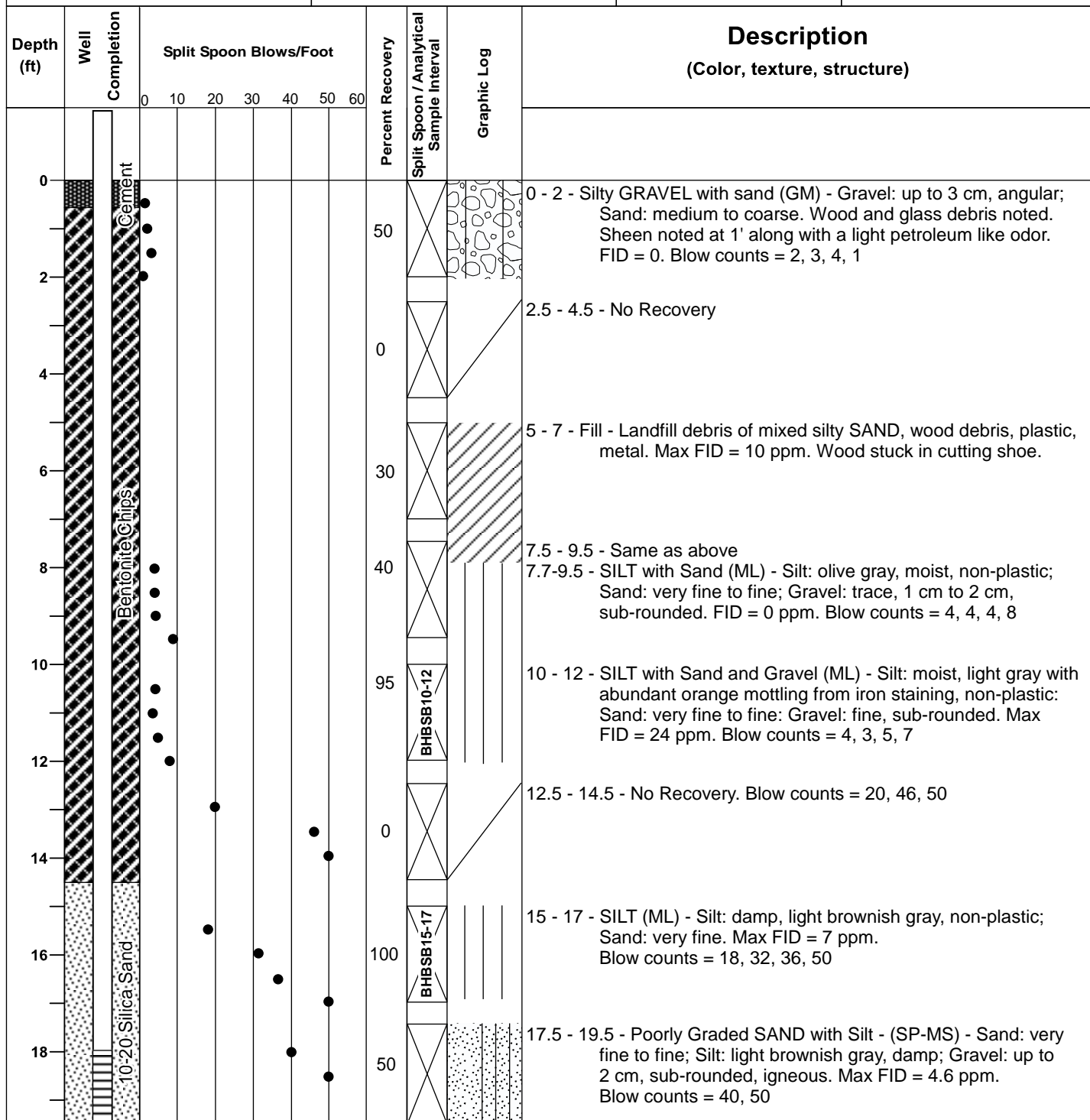
Project	May Creek Landfill	Company	Ecology and Environment	Log By	J Reeve
Location	Renton, Washington	Project No.		Date Drilled	7/9/2019
Drilling Company	Holt Services	Total Hole Depth	19-feet	Diameter	6-inch
Driller		Method	Hollow Stem Auger	Rig / Core Type	Mobile B58
Surface Elev.	465.81 feet	Filter Pack Material	12-20 CSS	WL Initial	7.86 feet toc
TOC Elev.	468.08 feet	Filter Pack Interval	5 - 19 feet bgs	WL Static	8.97 feet toc
Latitude	47.50194472	Seal Material	Bentonite Chips	Slot Size	0.010-inch
Longitude	-122.1327708	Seal Interval	1.5 - 5 feet bgs	Casing Dia	2-inch
				Sump Intrvl	17 - 18 feet bgs
				Type	PVC

Depth (ft)	Well Completion	Split Spoon Blows/Foot	Percent Recovery	Split Spoon / Analytical Sample Interval	Graphic Log	Description (Color, texture, structure)
0		0				0 - 2 - No Recovery
2						
4						2.5 - 4.5 - SILT with Sand (ML) - Silt: inorganic, light yellowish brown, moist, soft, non plastic, organic silt from 2.5' to 2.7'; Sand: very fine. Blow counts = 4-3-6-4.
6						5 - 7 - SILT with Sand and Gravel (ML) - Silt: yellowish brown, moist; Sand: very fine; Gravel: sub-rounded, up to 5 cm, some iron staining noted. FID = 0. Blow counts = 5, 6, 11, 15.
8						7 - 9.5 - Silty GRAVEL (GM) - Gravel: 5 to 8 cm, sub-rounded, igneous; Silt: olive gray, moist; Sand: fine. FID = 0. Blow counts = 14, 29, 30, 36.
10						9.5 - 12 - Poorly Graded GRAVEL with Sand and Silt (GP) - Gravel: sub-rounded to round, up to 7 cm; Sand: fine to medium; Silt: yellowish brown, saturated. Blow counts = 17, 27, 50.
12						
14						12.5 - 14.5 - Silty GRAVEL (GM) - Gravel: up to 7 cm, sub-rounded to rounded; Silt: light brownish gray, saturated. FID = 0. Blow counts = 33, 50.
16						15 - 16 - Silty GRAVEL (GM) - Gravel: sub-rounded to rounded; Sand: fine to coarse; Silt: light brownish gray, saturated. FID = 0. Blow counts = 70, 45.
18						16-18.5 - No Recovery



## Monitoring Well: BH-B/MW-03

Project	May Creek Landfill	Company	Ecology and Environment	Log By	J Reeve
Location	Renton, Washington	Project No.		Date Drilled	7/11/2019
Drilling Company	Holt Services	Total Hole Depth	31-feet	Diameter	6-inch
Driller		Method	Hollow Stem Auger	Rig / Core Type	Mobile B58
Surface Elev.	454.36 feet	Filter Pack Material	12-20 CSS	WL Initial	29.15 feet toc
TOC Elev.	457.00 feet	Filter Pack Interval	14.5 - 29 feet bgs	WL Static	20.87 feet toc
Latitude	47.50098306	Seal Material	Bentonite Chips	Slot Size	0.010-inch
Longitude	-122.1309667	Seal Interval	0.5 - 14.5 feet bgs	Casing Dia	2-inch
				Sump Intrvl	28 - 29 feet bgs
				Type	PVC



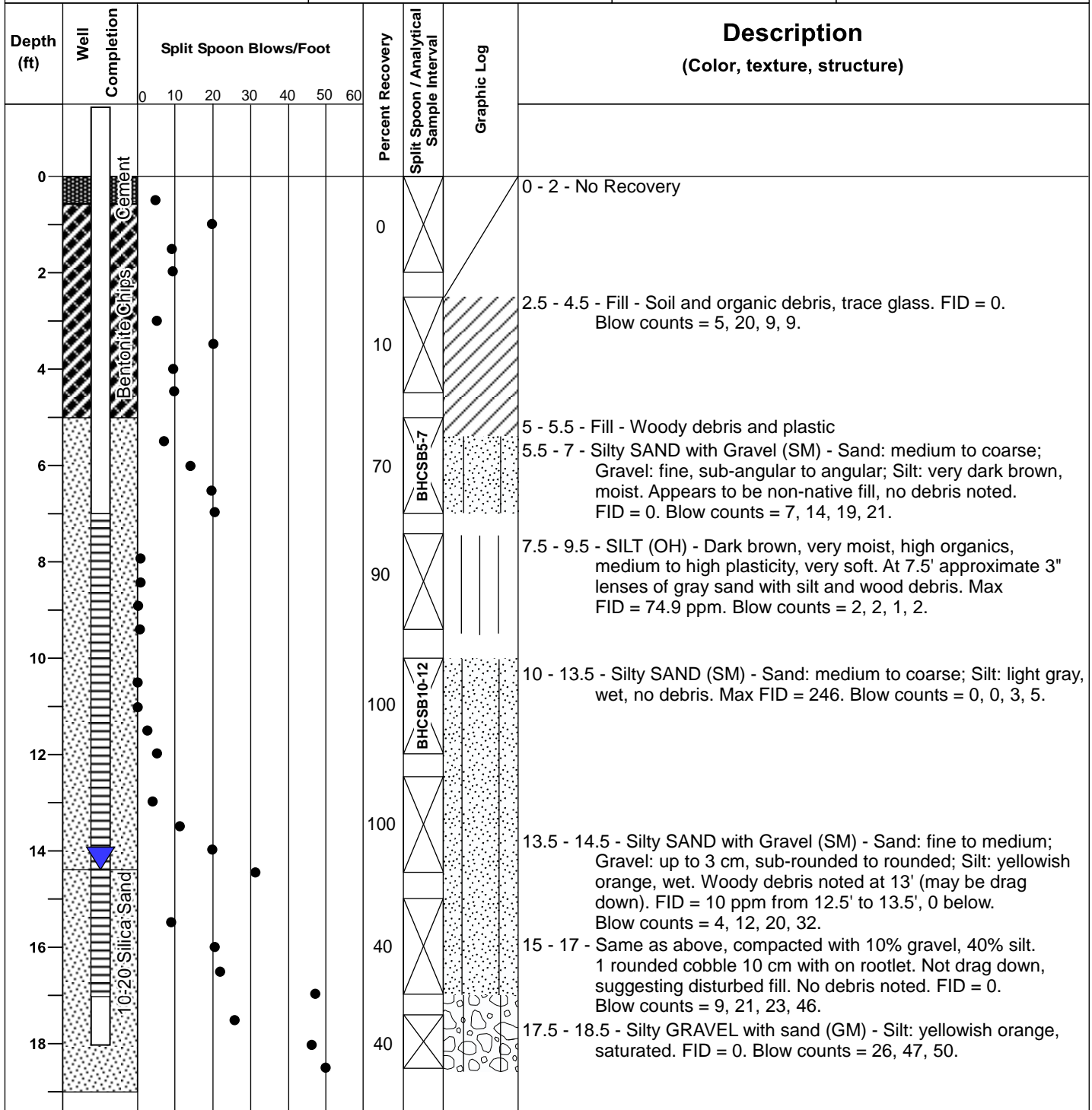
**Monitoring Well: BH-B/MW-03**

Depth (ft)	Well Completion	Split Spoon Blows/Foot					Percent Recovery	Split Spoon / Analytical Sample Interval	Graphic Log	Description  (Color, texture, structure)
20	 10-20 Silica Sand									20 - 22 - Same as above
22										
24										22.5 - 24.5 - Silty SAND (SM) - Sand: very fine to fine; Silt: damp, steel gray; Gravel: sub-rounded, metamorphic. Material packed very tight (appears to be glacial till). FID = 0. Blow counts = 37, 50
26										25 - 27 - Silty SAND (SM) - Sand: medium; Gravel: green sub-angular to sub-angular metamorphic, 0.5 cm to 4 cm. Possible water bearing. FID = 0. Blow counts = 47, 50
28										27.5 - 29 - Well Graded SAND with Silt (SW-SM) - Sand: fine to coarse; Silt: moist, light brownish gray; Gravel: sub-angular to sub-rounded, fine to 7 cm. Max FID = 10.6 ppm. Blow counts = 46, 50
30										29.5 - 31 - Well Graded SAND with Silt (SW-SM) - Sand: medium to very coarse; Gravel: fine to 6 cm, mix of sedimentary and igneous, sub-rounded, increasing moisture, but not wet, maybe voiding pore spaces. Max FID = 13 ppm. Blow counts = 22, 47, 50
32										
34										
36										
38										
40										
42										
44										



## Monitoring Well: BH-C/MW-02

Project	May Creek Landfill	Company	Ecology and Environment	Log By	J Reeve
Location	Renton, Washington	Project No.		Date Drilled	7/10/2019
Drilling Company	Holt Services	Total Hole Depth	18.5-feet	Diameter	6-inch
Driller		Method	Hollow Stem Auger	Rig / Core Type	Mobile B58
Surface Elev.	467.27 feet	Filter Pack Material	12-20 CSS	WL Initial	13.2 feet toc
TOC Elev.	469.92 feet	Filter Pack Interval	5 - 18.5 feet bgs	WL Static	14.47 feet toc
Latitude	47.50098722	Seal Material	Bentonite Chips		
Longitude	-122.1318725	Seal Interval	0.5 - 5 feet bgs		
				Screen Dia	2-inch
				Length	10-feet
				Screen Intrvl	7 - 17 feet bgs
				Slot Size	0.010-inch
				Casing Dia	2-inch
				Sump Intrvl	17 - 18 feet bgs
				Type	PVC





## Monitoring Well: BH-D/MW-04

Project	May Creek Landfill	Company	Ecology and Environment	Log By	J Reeve
Location	Renton, Washington	Project No.		Date Drilled	7/11/2019
Drilling Company	Holt Services	Total Hole Depth	21-feet	Diameter	6-inch
Driller		Method	Hollow Stem Auger	Rig / Core Type	Mobile B58
Surface Elev.	435.68 feet	Filter Pack Material	12-20 CSS	WL Initial	18.80 feet toc
TOC Elev.	437.87 feet	Filter Pack Interval	8 - 21 feet bgs	WL Static	16.97 feet toc
Latitude	47.50144667	Seal Material	Bentonite Chips	Screen Dia	2-inch
Longitude	-122.1305925	Seal Interval	1 - 8 feet bgs	Screen Intrvl	10 - 20 feet bgs
				Slot Size	0.010-inch
				Casing Dia	2-inch
				Sump Intrvl	20 - 21 feet bgs
				Type	PVC

Depth (ft)	Well Completion	Split Spoon Blows/Foot	Percent Recovery	Split Spoon / Analytical Sample Interval	Graphic Log	Description (Color, texture, structure)
0	Cement			BHDSB0-2		0 - 2 - Fill - Silty SAND with Gravel (SM) - Woody debris, bark chips, asphalt roofing tile, glass. Silty SAND layer 0.2' to 0.8' is discolored gray with petroleum and has max FID of 1,020 ppm. Average for 1.7' of soil is 50 ppm. FID 0 ppm at 12" away, gasoline odor present when disturbed. Top of area asphalt paving at 1.5' in cutting shoe. Blow counts = 2, 3, 5, 6.
2	Bentonite Chips			BHDSB2.5-4.5		2.5 - 4.5 - Fill - Woody debris and silt with sand to 4', black tar/bituminous mass with wood, brick, and angular gravel 4.0' to 4.5'. Correlates with level of nearby asphalt pad, though not hard like asphalt, hand moldable. Possible softened by heat (not enough heat from split spoon) or solvents. Gasoline odor present during initial auguring above asphalt. Max FID = 150 ppm. Blow counts = 7, 12, 19, 21.
4						5 - 7 - Fill - Silty SAND with Gravel (SM) - Sand has been blackened by fire at 5.5', one red brick on top of fire layer. Large round igneous cobble on top of brick (possible river rock). Blow counts = 12, 22, 33, 10.
6						7.5 - 9.5 - Fill - Refusal on concrete at 7.5' to 8.0', red rubber sheet on top of concrete. FID 0 ppm.
8						
10						10 - 10.3 - Well Graded SAND with Silt (SW-SM).
12						10.3 - 12 - Refusal at 10.3' on large igneous cobble/boulder. No Recovery. FID = 0. No Recovery. Blow counts = 50.
14	10-20 Silica Sand			BHDSB12.5-14.5		12.5 - 14.5 - Silty SAND (SM) - Sand: very fine with increased size to medium below 13.5'; Silt: saturated, light greenish gray with orange mottling (possible iron stain); Gravel: trace, up to 2 cm, sub-rounded. FID = 0. Blow counts = 4, 3, 4, 6.
16						15 - 17 - Silty SAND with gravel (SM) - Sand: poorly graded, very fine; Silt: yellowish brown, moist; Gravel: igneous, 1 cm to 3 cm increasing to 7 cm below 17.5', sub-rounded to rounded (glacial outwash). FID = 0. Blow counts = 17, 27, 30, 45.
18						17.5 - 19.5 - Same as above. Blow counts = 36, 48, 44, 42.



**Monitoring Well: BH-D/MW-04**

Depth (ft)	Well Completion	Split Spoon Blows/Foot	Percent Recovery	Split Spoon / Analytical Sample Interval	Graphic Log	Description (Color, texture, structure)
20			60			20-21 - Same as above with thin medium grain sand lenses at 20.3'. Occasional areas of fine to medium sand (out wash). FID = 0. Blow counts = 31, 50.
22						
24						
26						
28						
30						
32						
34						
36						
38						
40						
42						
44						





## Monitoring Well: BH-E/MW-06

Project	May Creek Landfill	Company	Ecology and Environment	Log By	J Reeve
Location	Renton, Washington	Project No.		Date Drilled	7/13/2019
Drilling Company	Holt Services	Total Hole Depth	24.75 - feet	Diameter	6-inch
Driller		Method	Hollow Stem Auger	Rig / Core Type	Mobile B58
Surface Elev.	395.34 feet	Filter Pack Material	12-20 CSS	WL Initial	20.45 feet toc
TOC Elev.	398.23 feet	Filter Pack Interval	12 - 24.75 feet bgs	WL Static	16.77 feet toc
Latitude	47.50223611	Seal Material	Bentonite Chips		
Longitude	-122.1303089	Seal Interval	0.5 - 12 feet bgs		
				Screen Dia	2-inch
				Length	10-feet
				Screen Intrvl	13.75 - 23.75 feet
				Slot Size	0.010-inch
				Casing Dia	2-inch
				Sump Intrvl	23.75 - 24.75 feet
				Type	PVC

Depth (ft)	Well Completion	Split Spoon Blows/Foot	Percent Recovery	Split Spoon / Analytical Sample Interval	Graphic Log	Description (Color, texture, structure)
0	Cement					
0 - 2			100			0 - 2 - Fill - Dark brown damp SILT (ML) with sand mixed with multiple large chunks of concrete, asphalt, and sticks. FID 0 ppm. Blow counts = 5, 13, 21, 26.
2						
2.5 - 4.5			50			2.5 - 4.5 - SILT with Sand and Gravel (ML) - Silt: brown, damp; Sand: fine to medium; Gravel: fine to 4 cm, angular to sub-rounded. At 2.5' split spoon went through 3" of concrete with a flat top surface. FID 0 ppm. Blow counts = 7, 19, 21, 13.
4						
5 - 7			90			5 - 7 - SILT (ML) - Silt: dark brown, moist, soft, low plasticity, some organics noted; Sand: very fine to fine; Gravel: sub-rounded, up 6 cm; Trace wood debris (some charred), no odors. Max FID = 67 ppm. Blow counts = 7, 7, 5, 4.
6						
7.5 - 9.5			90			7.5 - 9.5 - SILT (ML) - Very dark brown, moist, abundant wood debris (blackened but not charred); Sand: very fine; Gravel: 1 to 6 cm sub-rounded to rounded. FID = 0. Blow counts = 2, 3, 5, 5.
8						
10 - 12			80	BHESB10-12		10 - 12 - SILT with Sand and Gravel (ML) - Silt: soft, low plasticity; Sand: green, medium at 10.3' grading to very fine, green gray at 12'. Green color suggests Fe2 reducing environment; Gravel; trace, rounded 2 cm to 3 cm. FID = 0. Blow counts = 6, 7, 5, 7.
12						
12.5 - 14.5			100			12.5 - 14.5 - SILT with Sand and Gravel (ML) - Silt: dense, non-plastic, moist, yellowish brown; Sand: very fine with trace coarse; Gravel: 3 cm to 7 cm, sub-rounded to rounded. No odor or debris. Blow counts = 19, 21, 37, 50.
14						
15 - 17			100	BHESB15-17		15 - 17 - SILT (ML) - Silt: moist, yellowish brown, very stiff, low plasticity; Gravel: trace, fine, rounded, low moisture. FID = 0. Blow counts = 19, 41, 41, 37.
16						
17.5 - 19.5			50			17.5 - 19.5 - Poorly Graded GRAVEL (GP) - Poor recovery, cobbles mostly >7 cm, mix of metamorphic and sandstone. Little water on cutting shoe, gravel is dry. Cobble stuck in cutting shoe. FID 0 ppm. Unlikely that whole interval is GP. Blow counts = 41, 50.
18						





**Monitoring Well: BH-E/MW-06**

[illegible]



## Monitoring Well: BH-F/MW-05

Project	May Creek Landfill	Company	Ecology and Environment	Log By	J Reeve
Location	Renton, Washington	Project No.		Date Drilled	7/12/2019
Drilling Company	Holt Services	Total Hole Depth	21-feet	Diameter	6-inch
Driller		Method	Hollow Stem Auger	Rig / Core Type	Mobile B58
Surface Elev.	431.39 feet	Filter Pack Material	12-20 CSS	WL Initial	17.76 feet toc
TOC Elev.	434.20 feet	Filter Pack Interval	9 - 21 feet bgs	WL Static	18.12 feet toc
Latitude	47.50174528	Seal Material	Bentonite Chips		
Longitude	-122.1306881	Seal Interval	0.5 - 9 feet bgs		
				Screen Dia	2-inch
				Length	10-feet
				Screen Intrvl	10 - 20 feet bgs
				Slot Size	0.010-inch
				Casing Dia	2-inch
				Sump Intrvl	20 - 21 feet bgs
				Type	PVC

Depth (ft)	Well Completion	Split Spoon Blows/Foot	Percent Recovery	Split Spoon / Analytical Sample Interval	Graphic Log	Description (Color, texture, structure)
0	Cement					0 - 2 - Fill - Wood debris and timber slash. One piece of plastic and one 3" layer of dark gray silty sand at 1.7'. No odor in sand, anerobic odor in wood debris. 129 ppm max FID in soil. Blow counts = 10, 6, 13, 15.
2			80			2.5 - 4.5 - Fill - Little recovery, dark brown, moist. Blow counts = 4, 3, 4, 6.
4	Bentonite Chips		10			5 - 7 - Fill - Little recovery, dark brown, moist. Blow counts = 4, 4, 4, 6.
6			5			7.5 - 8 - Fill as above to 8.0'.
8			90			8-9.5 - SILT (ML) - Silt: moist, dark gray, soft, non-plastic; Sand: very fine; Gravel: trace, up to 2 cm, sub-rounded to rounded (possible glacial soil). Blow counts = 3, 5, 7, 8.
10			70	BHFSB10-12		10 - 12 - SILT (ML) - Silt: very moist, dark brownish gray, soft, non-plastic; Gravel: increasing, fine to 2 cm, sub-rounded to rounded, igneous. Max FID = 257 in gray material to 374 ppm in brownish gray material. Blow counts = 4, 3, 3, 4.
12			80	BHFSB12.5-14.5		12.5 - 14.5 - SILT with Sand (ML) - Silt: very dark brown, saturated, soft, chunks of blackened wood thorough, layer of fibrous material at 13'. No odors, max FID = 333, avg. = 30 ppm. Blow counts = 3, 5, 13, 21.
14	10-20 Silica Sand		30			15 - 17 - Silty GRAVEL with Sand (GM) - Gravel: fine to >6 cm, fractured well rounded to rounded, igneous; Sand: fine to medium; Silt: very dark gray, wet. Max FID = 4.4 ppm. Blow counts = 9, 9, 11, 15.
16			50			17.5 - 18 - Same as above
18						18-21 - SILT with Sand (ML) - Silt: light orangish gray, saturated, dense, low plasticity; Sand: very fine; Gravel: trace, up to 2 cm, sub-rounded to rounded, red rock with white flecks (possible brick). Max FID = 39. Blow counts = 36, 50.



**Monitoring Well: BH-F/MW-05**

[illegible]



## Monitoring Well: BH-G/MW-07

Project	May Creek Landfill	Company	Ecology and Environment	Log By	J Reeve
Location	Renton, Washington	Project No.		Date Drilled	7/13/2019
Drilling Company	Holt Services	Total Hole Depth	17-feet	Diameter	6-inch
Driller		Method	Hollow Stem Auger	Rig / Core Type	Mobile B58
Surface Elev.	443.56 feet	Filter Pack Material	12-20 CSS	WL Initial	Dry
TOC Elev.	446.14 feet	Filter Pack Interval	5 - 17 feet bgs	WL Static	15.09 feet toc
Latitude	47.50185611	Seal Material	Bentonite Chips		
Longitude	-122.1311367	Seal Interval	0.5 - 8 feet bgs		
				Screen Dia	2-inch
				Length	10-feet
				Screen Intrvl	6 - 16 feet
				Slot Size	0.010-inch
				Casing Dia	2-inch
				Sump Intrvl	16 - 17 feet
				Type	PVC

Depth (ft)	Well Completion	Split Spoon Blows/Foot	Percent Recovery	Split Spoon / Analytical Sample Interval	Graphic Log	Description (Color, texture, structure)
0						0-1.5 - Fill - Silty SAND with Gravel (SM) - very dark brown, damp, 2" glass and gravel to 0.8'. Blow counts = 6, 16, 32.
2			80			
4			80	BHGSB2.5-4.5		2.5 - 4.5 - Silty SAND (SM) - Sand: very fine to medium, dark brown to steel gray; Silt: gray moist, no discernible petroleum odor despite apparent discoloration. Poorly graded SAND with silt (SP-SM) noted from 3.5' to 3.8'. FID 30 ppm 2.5' to 3.5', 120 ppm 3.5' to 4.5' with peak of 174 ppm. Bits of glass and wood throughout. Blow counts = 6, 10, 6, 7.
6			5			5-5.2 - Silty SAND (SM) - Sand: sub-angular to angular; Silt: dark gray, moist. Blow counts = 8, 20, 4, 6. 5.2-7 - Log stuck in cutting shoe, no recovery.
8			70	BHGSB7.5-9.5		7.5 - 9.5 - SILT with Sand (ML) - Silt: soft, very moist, low plasticity; Sand: very fine to medium; Gravel: trace, rounded 3 cm. At 9' color to dark gray, increased medium sand and moisture to saturated. FID = 90 PPM through entire interval. Blow counts = 1, 2, 1, 6.
10			100			10 - 12 - SILT with Sand (ML) - saturated, moist, low to no plasticity; Sand: very fine to fine; Gravel: trace, sub-rounded 3cm to 4 cm. Silty SAND (SM) with fine gravel 11' to 11.3'. Orange banding noted 11' to 12'. FID 35 ppm avg. 10' to 11', 2 to 4 ppm at 11' to 12'. Blow counts = 2, 4, 7, 10.
12						
14			90			12.5 - 14.5 - SILT with sand and gravel (ML) - Silt: yellowish brown, saturated, stiff with low plasticity; Sand: very fine to fine; Gravel: 1 cm to 3 cm, sub-rounded. At 13.5' is 0.4' layer black PEAT (PF) with glassy to brown micaceous fine to medium sand, deformed with core barrel in arch. FID 2 ppm whole interval. Blow counts = 12, 32, 45, 55.
16			80			15 - 17 Silty SAND with gravel (SM) - Sand: fine to medium; Silt: moist yellowish brown; Gravel: trace, 0.5 cm to 3 cm, sub-rounded to rounded. FID avg 1 ppm. Blow counts = 8, 28, 50.
18						

# **Appendix H**

## **Monitoring Well Survey Report**

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September 6, 2019

Laurie Palmer, Contract Specialist  
Environmental Quality Management, Inc.  
18939 120<sup>th</sup> Avenue NE, Suite 103  
Bothell, WA 98011  
425-673-2900 Main  
425-673-7511 Fax  
206-276-3850 Cell  
lpalmer@eqm.com

Seven Monitoring Wells Survey Report  
Subject Property: 15753 SE Renton-Issaquah Rd,  
Renton  
Tax Parcel No: 0638100031  
NE ¼ OF SECTION 11 T23N, R05E, WM  
Project #:1655.002

## REPORT OF SURVEY CONDUCTED ON SEPTEMBER 05, 2019

We were met on site by EPA's Jeff Fowlow. He walked our crew to each of the Monitoring Well and unlocked them. The results of the survey are attached; along with photographs of each well. Because of the potential for site disruption, Mr. Fowlow suggested we use the North side mark of the riser on each well.

Point #	WA State Plane Coord. NAD83/2011 North Zone US Survey Feet		NAVD88 Elev. Feet	Description	Latitude North			Longitude West		
	North	East								
1010	185806.29	1319236.39	468.08	WATER MINITOR WELL MW 1	47°	30'	07.001"	122°	07'	57.975"
1011	185806.57	1319236.72	465.81	GROUND SHOT MW 1	47°	30'	07.003"	122°	07'	57.970"
1015	185453.40	1319452.46	469.92	WATER MINITOR WELL MW 2	47°	30'	03.554"	122°	07'	54.741"
1014	185453.92	1319452.16	467.27	GROUND SHOT MW 2	47°	30'	03.559"	122°	07'	54.746"
1007	185448.03	1319676.31	457.00	WATER MINITOR WELL MW 3	47°	30'	03.539"	122°	07'	51.480"
1006	185448.32	1319676.14	454.36	GROUND SHOT MW 3	47°	30'	03.541"	122°	07'	51.483"
1019	185615.54	1319771.68	437.87	WATER MINITOR WELL MW 4	47°	30'	05.208"	122°	07'	50.133"
1018	185615.59	1319771.40	435.68	GROUND SHOT MW 4	47°	30'	05.208"	122°	07'	50.137"
1003	185724.89	1319749.86	434.20	WATER MINITOR WELL MW 5	47°	30'	06.283"	122°	07'	50.477"
1004	185724.44	1319749.77	431.39	GROUND SHOT MW 5	47°	30'	06.278"	122°	07'	50.478"
1023	185902.37	1319846.61	398.23	WATER MINITOR WELL MW 6	47°	30'	08.050"	122°	07'	49.112"
1022	185902.73	1319846.88	395.34	GROUND SHOT MW 6	47°	30'	08.054"	122°	07'	49.108"
1002	185767.20	1319639.68	446.14	WATER MINITOR WELL MW 7	47°	30'	06.682"	122°	07'	52.092"
1001	185766.47	1319639.37	443.56	GROUND SHOT MW 7	47°	30'	06.675"	122°	07'	52.096"

For each well we provide a Picture looking down into the well and from the same angle looking at the casing/ground. Those pictures follow:





Monitoring Well MW 1, taken from the South.



Monitoring Well MW 2, taken from the North.







Monitoring Well MW 3, taken from the South.



Monitoring Well MW 4, taken from the South.







Monitoring Well MW 5, taken from the West.



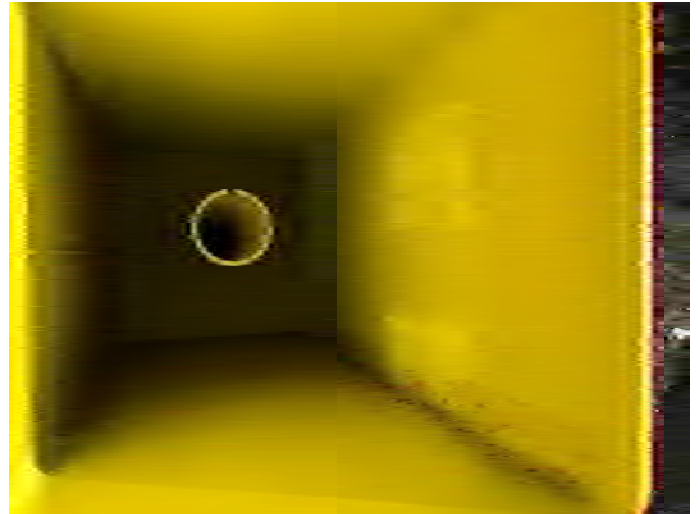
Monitoring Well MW 6, taken from the North.







Monitoring Well MW 7, taken from the West.



Accompanying this letter report is a "thumb-drive" containing this letter, a csv file of all the points, and the photos. If you have any questions or concerns, please call me at this office.

Sincerely:

*Tyler Sweet*

Tyler Sweet, PLS  
Senior Surveyor

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